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Well Fitness Evaluation for the Idaho National Engineering Laboratory

Volume 1

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Well Fitness Evaluation for the Idaho National Engineering Laboratory

Volume 1

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ANL . . . . . ANL
ARA . . . . . ARA
CFA . . . . . CFA
EBR . . . . . EBR
ICPP . . . . . ICPP
INEL-North . . . . . INEL-North
INEL-Middle . . . . . INEL-Middle
INEL-South . . . . . INEL-South
NRF . . . . . NRF
PBF . . . . . PBF
RWMC . . . . . RWMC
TAN . . . . . TAN
TAN-CTF . . . . . TAN-CTF
TAN-IET . . . . . TAN-IET
TAN-TSF . . . . . TAN-TSF
TAN-WRRTF . . . . . TAN-WRRTF
TRA . . . . . TRA

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We would like to acknowledge the efforts of Roger Jenson, of the USGS INEL Project Office, who spent many long hours researching well information and reviewing the checklists for this document. Without his contributions, we would not have been able to provide accurate and complete information.

Well Fitness Evaluation for the Idaho National Engineering Laboratory

1. INTRODUCTION

1.1 Background

The Idaho National Engineering Laboratory (INEL) is a government-owned reservation in southeastern Idaho. The INEL is approximately 80.5 km (50 mi) west of Idaho Falls, Idaho (Figure 1), and covers approximately 2,307 km^2 (890 mi^2), extending a maximum of 63 km (39 mi) from north to south and 58 km (36 mi) from east to west. In addition to nine major operational areas, a number of miscellaneous facilities comprise the INEL (Figure 2). Additional support and administrative facilities are located in Idaho Falls.

Since the inception of the INEL, approximately 660 wells and boreholes have been constructed at the INEL for groundwater monitoring and characterization, underground injection, obtaining drinking and industrial water, etc. Information concerning these wells and a number of off-Site wells has been compiled by the INEL Comprehensive Well Survey (CWS) Program. The Well Fitness Evaluation (WFE) for the Idaho National Engineering Laboratory is an integral component of the CWS Program.

1.2 CWS Program Overview

The CWS Program is an ongoing program developed to ensure that all wells located at the INEL and all off-Site wells used by the INEL are identified, are of known quality, meet all applicable well construction standards, and are not allowing cross-contamination between distinct geological strata. The CWS Program consists of three general phases:

- Documenting the location and construction of all INEL-associated wells (e.g., production, potable, injection, and monitoring wells)
- Evaluating each well to determine if it meets all applicable Department of Energy (DOE), Federal, and State of Idaho well construction standards and INEL-specific best management practices (BMPs)
- Upgrading or abandoning deficient wells, if necessary.

To date, all wells known to be associated with the INEL have been identified and their locations have been mapped. These wells are presently being resurveyed to ensure that their locations and elevations are correct. All pertinent well data collected by the CWS Program have been documented and are being maintained in the CWS repository (hard copies) and on the CWS data base (electronic copies). A summary of the CWS data has been documented in the Comprehensive Well Survey for the Idaho National Engineering Laboratory (Sehlke et al. 1992). The repository and data base are maintained by the Environmental Programs Group of EG&G

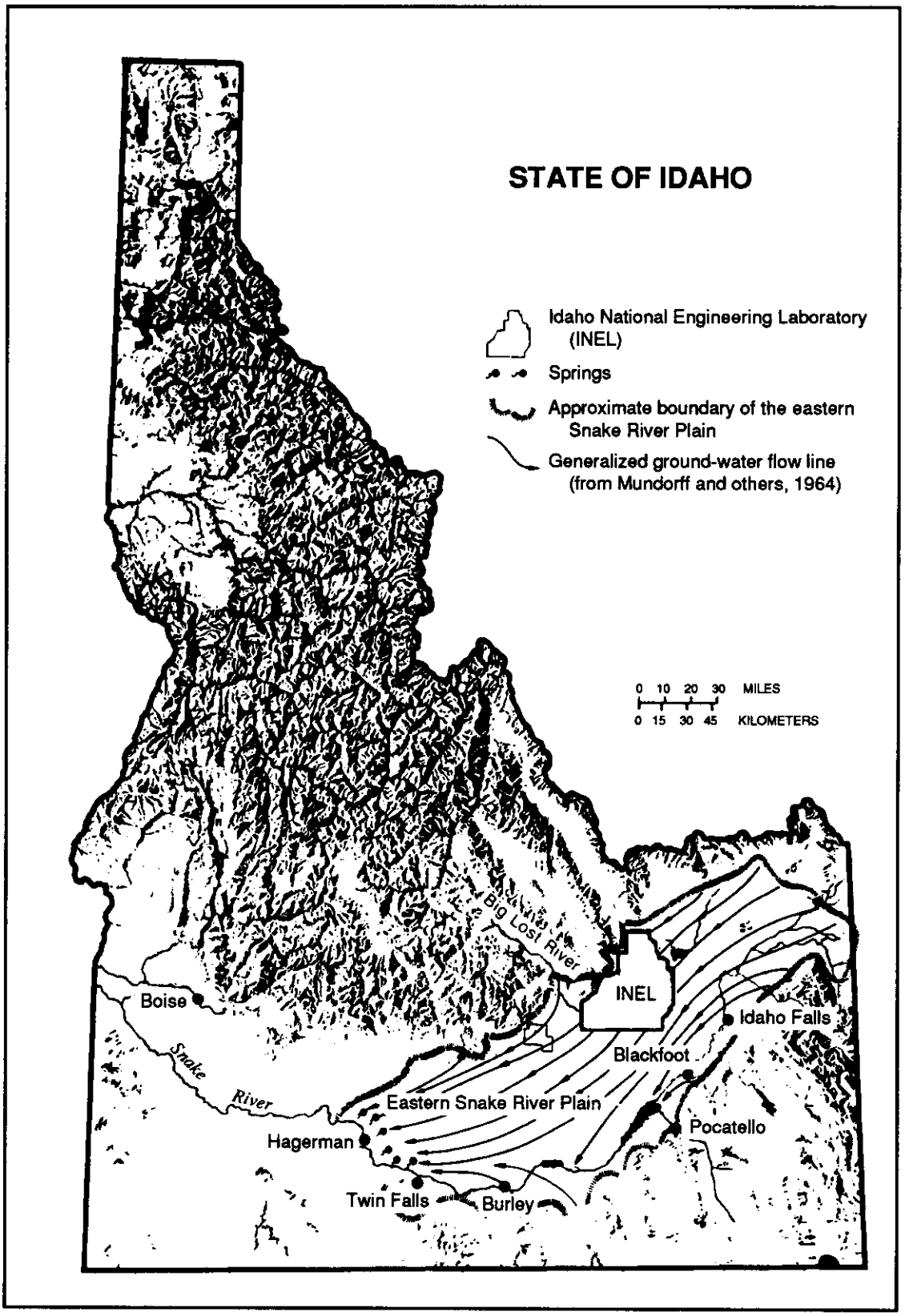

Figure 1. Location of INEL, Snake River Plain, and generalized groundwater flow lines of the Snake River Plain Aquifer (after Barraclough et al., 1981)

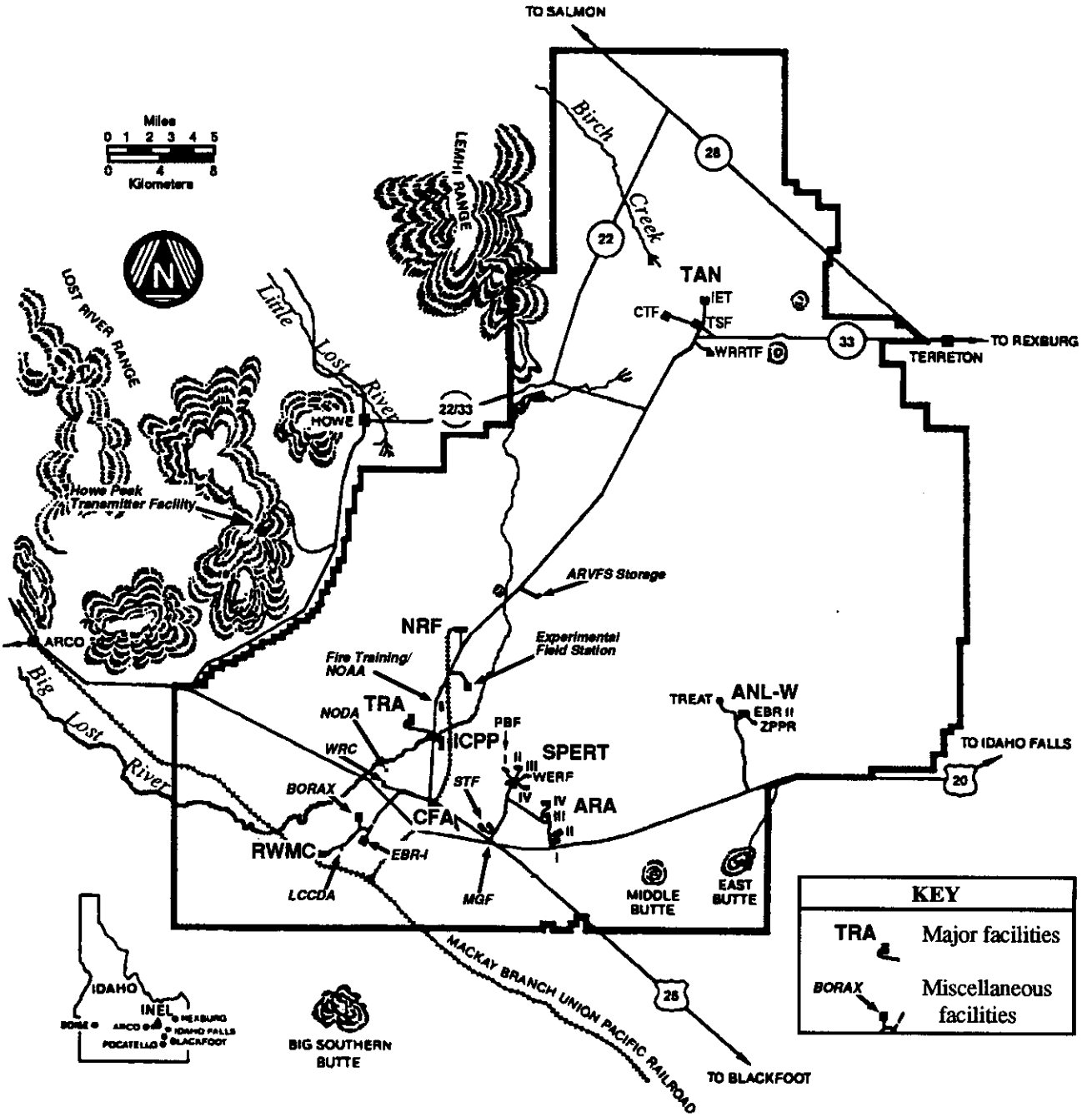

Figure 2. Location of INEL facilities (after Bagby et al., 1984).

Idaho's Environmental, Safety, and Quality Department. The CWS data base resides in the INEL Environmental Restoration Information System (ERIS), and all well locations have been mapped using the ERIS Arc/Info Geographical Information System.

1.3 WFE Overview

The WFE was developed to evaluate INEL wells against applicable DOE, Federal, and State well construction standards and INEL-specific BMPs. The determination of which standards and BMPs are applicable to each well was based on the intended use of the well. For example, if a well's intended use is underground injection, it would be evaluated against (a) INEL-specific BMPs (for wellhead completion), (b) State of Idaho standards for the construction and use of injection wells (the State of Idaho has primacy for injection wells through the Safe Drinking Water Act), and (c) State of Idaho well construction standards (all injection wells are required by State of Idaho injection well regulations to also meet these general well standards). The results of these evaluations are documented in this report.

1.4 Corrective Actions

While gathering and evaluating well data, it was determined that the location and elevation data associated with numerous wells are inaccurate. Therefore, an additional network of first-order vertical survey markers was constructed at the INEL in 1992 by the National Geodetic Survey. Presently, each INEL well is being surveyed to these markers, and these data will be uploaded into the CWS data base.

The results of the WFE and other on-Site inspections by the United States Geological Survey (USGS) and other evaluations (e.g., Beard 1992a) are being used to determine which INEL wells need to be upgraded or abandoned, and to prioritize the deficient wells for future corrective actions. A number of well upgrades have already been initiated.

1.5 Organization of the INEL Well Fitness Evaluation

The original intent was not to produce a stand-alone WFE summary document, but to develop a series of stand-alone checklists to be inserted in the appropriate CWS repository well file. However, during the review process, it became apparent that the checklists needed to be bound together to facilitate the review. Based on review comments, it was determined that a limited number of bound versions should be produced and maintained in readily accessible locations at the INEL.

Sections 2 and 3 in this document explain the purposes, objectives, and scope of the program. Section 4 is an overview of the technical approach used to develop and conduct the WFE, and Section 5 describes well construction issues that should be resolved. Section 6 explains the process for obtaining variances, and Section 7 provides an overview of the quality assurance and quality control steps taken to ensure the quality of this document. Section 8 summarizes the fitness for use of all INEL wells.

Two indexes are included to facilitate finding wells in the WFE. Index A contains a list of all wells evaluated in the WFE in alphabetical order. Index B contains a list of all wells evaluated in the WFE sorted by facility and then in alphabetical order.

Appendix A contains summary matrices and associated pie charts. The intent of this appendix is to provide information to those who are interested in only a brief overview of the results of this evaluation. However, the data contained in this appendix have been condensed to a great degree, and they should not be used alone as the basis for accepting or rejecting the evaluation or for taking corrective actions. Before making critical decisions, refer to the appropriate detailed well checklist.

Appendix B includes the detailed well fitness checklists and well "as-built" construction diagrams. The checklists are presented by location (e.g., area or relative location on the INEL) and then by well name in alphabetical order. Appendix B also contains the as-built well construction diagrams.

2. PURPOSE AND OBJECTIVES

The purpose of the WFE is to evaluate the pertinent construction data for wells located on the INEL to determine if each well meets the applicable construction standards for its intended use. The primary objectives of the well fitness survey were to evaluate the completion of all INEL wells and boreholes to:

- Ensure compliance with applicable DOE, Federal, and State of Idaho well construction regulations and guidelines
- Ensure, to the greatest extent possible, compliance with the applicable INEL-specific BMPs
- Document any deficiencies associated with INEL wells and boreholes
- Make general recommendations concerning the useability of wells or the need for remediation/abandonment
- Develop as-built diagrams for all INEL wells.

3. SCOPE

This document is intended to provide an in-depth evaluation of all the wells associated with the INEL. Over 800 well and borehole records are maintained in the CWS repository and CWS data base. Of these, 647 wells and boreholes are located on the INEL. The types of wells that were evaluated during the WFE include observation, monitoring, injection, potable, production, stock, and miscellaneous wells, along with piezometers (see Table 1). In addition to evaluating well construction information, personnel electronically compiled the borehole lithological data in the CWS data base. The well construction data were used to develop as-built drawings of each well. In addition, lithological logs were developed for each well or borehole for which sufficient data were available.

Table 1. INEL well/borehole types, completion zones, and status.[a]

Category	Definition
Standard Well Types	
Domestic Well (DOM)	A non-INEL (off-Site) well used to obtain groundwater for domestic water supply. These wells may also be used by the INEL for off-Site groundwater monitoring.
Drinking Water Well (DWW)	A non-INEL (off-Site) well used to obtain groundwater for human consumption. A drinking water well is, by definition, part of a "drinking water system" (see IDAPA 16.01.08003,15). On-Site drinking water wells are classified as "potable water wells" to distinguish them from off-Site drinking water wells.
Deep Injection Well (DIW)	An injection well (see IDWR "Rules for Construction and Use of Injection Wells" (4/6/93), Rule 2,23) that is more than 18 ft deep (see Rule 2,11).
Irrigation Well (IRR)	A non-INEL (off-Site) well used for obtaining groundwater for agricultural irrigation. These wells may also be used by the INEL for off-Site groundwater monitoring.
Monitoring Well (MON)	A well used to sample or measure water quality or water levels in a saturated zone for compliance purposes. Compliance purposes include meeting Federal and/or State of Idaho regulations, and DOE groundwater monitoring requirements.
Observation Well (OBS)	A well used to sample or measure water quality or water levels in a saturated zone for programmatic or scientific purposes.
Piezometer (PIE)	A small-diameter, nonpumping well used to measure the elevation of the water table or potentiometric surface
Potable Water Well (POT)	An INEL well used for withdrawal of water for human consumption. A potable water well is, by definition, part of a "drinking water system" (see IDAPA 16.01.08003,15). Off-Site, this type of well is classified as a "drinking water well" to distinguish them from on-Site drinking water wells. Potable water wells are subject to the applicable Safe Drinking Water Act and DOE requirements for drinking water wells.
Production Well (PRO)	An INEL well used for withdrawal of water for water supply. These wells are multipurpose in nature, and water from these wells may be used for human consumption, industrial use, or for groundwater monitoring purposes. If the water obtained by these wells is used for human consumption, these wells are subject to the applicable Safe Drinking Water Act and DOE requirements for drinking water wells.

Table 1. (continued).

Category	Definition
Shallow Injection Well (SIW)	An injection well (see IDWR "Rules for Construction and Use of Injection Wells" (4/6/93), Rule 2,23) that is less than 18 ft deep (see Rule 2,41).
Stock Well (STO)	A well used to provide water for livestock. These wells may also be used by the INEL for groundwater monitoring.
Miscellaneous Well/Borehole Types	
Gas Port (GAS)	A cased borehole or tube used to monitor gases within the vadose zone.
Neutron Access (NEU)	A cased borehole or tube that is generally 2 in. in diameter and is used to run a neutron probe to determine the moisture gradient in the soil.
Not Found (NF)	Although some information is available, the well type is uncertain due to a lack of information, or conflicting information.
Open Borehole (BOR)	A drilled or cored hole that has either no casing or only a surface casing to prevent caving.
"Other" (OTH)	A well or borehole that, due to its unique purpose or design, cannot be categorized using the types defined in this table.
Scientific Instrumentation (SCI)	An open or cased borehole that either contains sampling or measuring instrumentation or allows access for sampling or measuring instrumentation (e.g., borehole containing lysimeters, gypsum blocks, salinity probes, or radioactivity monitoring ports).
Vapor Vacuum Extraction (VVE)	A cased borehole or tube used to extract gases within the vadose zone.
Well/Borehole Completion Zones	
Aquifer (A)	A well is completed, at least in part, below the water table for the Snake River Plain Aquifer.
Perched Water (P)	A well is completed in a perched water zone. A perched water zone is a zone of saturation located within the vadose or unsaturated zone above the Snake River Plain Aquifer.
Surface Sediments (S)	A well is completed in unconsolidated surficial sediment. In most cases, the shallow subsurface above the first layer of basalt consists of alluvial, eolian, and lacustrine deposits.
Vadose (V)	A well is completed in the vadose or unsaturated zone. Generally, the vadose is considered to be the unsaturated zone below the upper-most layer of surficial sediments above the Snake River Plain Aquifer exclusive of known perched water zones.

Table 1. (continued).

Category	Definition
Well/Borehole Status	
Abandoned (AB)	A well that has been filled or plugged so that it is rendered unproductive and will prevent contamination of the groundwater. A properly abandoned well will neither produce water nor serve as a channel for movement of water from the well or between water-bearing zones. The abandonment of wells at the INEL will be conducted in accordance with the requirements of the State of Idaho Well Construction Standards: Rules and Regulations (August 1988), Rule 3.12, as a matter of comity. For injection wells, the State of Idaho recognizes three categories of abandonment: permanent (Rule 2,32), temporary (Rule 2,44), and unauthorized abandonment (Rule 2,45).
Active (AC)	A well that is currently serving its intended use (e.g., to collect hydrogeologic data or for water supply).
Backfilled (BA)	A well that has been intentionally filled or plugged, often with native soil or drill cuttings. Note: It is often difficult to discern whether wells have been "backfilled" or "destroyed" based on the available documentation. Therefore, if a well's status couldn't be determined, the well was assigned to the "destroyed" category in the CWS.
Destroyed (DE)	A well that has been unintentionally filled or destroyed by some means. Note: It is often difficult to discern whether wells have been "backfilled" or "destroyed" based on the available documentation. Therefore, if a well's status couldn't be determined, the well was assigned to the "destroyed" category in the CWS.
Inactive (IN)	A well that is not currently serving its intended use but may be used in the future.
Not Found (NF)	Although some information is available, the well status is uncertain due to a lack of information, or conflicting information.

a. Modified from Sehlke et al. (1992).

Several types of wells were not evaluated as part of this study. The largest category not evaluated includes 120 underground injection control Class 5 shallow injection wells (< 18 ft deep as defined by State regulations) installed at various INEL facilities. These wells were not evaluated due to a lack of sufficient well construction information. A second group not evaluated consisted of privately owned wells located off-Site. They were not evaluated because they are not owned or controlled by DOE. Also not included in this study are new wells constructed in 1992 for which information has only recently become available. The final class not evaluated is a subset of the surface sediment wells (mainly abandoned or destroyed wells) located near INEL percolation ponds where drilling and well construction data were not available.

4. TECHNICAL APPROACH

The WFE consisted of five general phases: (a) determining the applicable standards and BMPs, (b) developing standard well fitness checklists, (c) evaluating the well data against the applicable well fitness checklist, (d) documenting the results of the evaluations, and (e) developing "as-builts" for each well or borehole. Each of these phases is described below.

4.1 Regulations and Guidelines

All DOE, Federal, and State of Idaho groundwater standards that are applicable to the INEL have been summarized in the Overview of Groundwater Regulations Pertinent to the Idaho National Engineering Laboratory (EG&G Idaho 1992). Based on a review of this document, it was determined that the following documents contain well construction requirements that are applicable at the INEL:

- Well Construction Standards, Rules, and Regulations (State of Idaho 1989b)
- Construction and Use of Injection Wells, Rules, and Regulations (State of Idaho 1984)
- Standards for Public Drinking Water Systems (State of Idaho 1989a)
- Resource Conservation and Recovery Act (RCRA) Groundwater Monitoring Technical Enforcement Guidance Document (EPA 1986) (which includes Federal guidelines for monitoring well construction)
- INEL Well Catalog (Beard 1992a) (which specifies the present INEL BMPs for the surface completions of INEL wells and boreholes).

Although some overlap exists among these regulations and guidelines, each has a different overall objective that can affect the construction of a well. For example, State of Idaho well construction regulations are concerned mainly with preventing contamination of the groundwater resources. Although most wells at the INEL are not governed by State construction regulations because of Federal sovereign immunity, all INEL wells have been evaluated against Rule 3 of these regulations (requirements for the construction of cold water wells) to ensure that wells do not allow cross-contamination. Evaluations of wells with respect to these requirements were conducted as a BMP because it is prudent for DOE to protect its groundwater resources from

contamination. In contrast, the primary purpose of RCRA well construction guidelines is to ensure that groundwater samples are representative of actual aquifer conditions. The questions on the well fitness checklist related to RCRA reflect these well construction preferences and the overall concern for the validity of the sampling results.

INEL-specific BMPs deal mainly with the wellhead (aboveground completions of the wells). These practices are designed to protect the wellheads from being tampered with or accidentally destroyed, to designate water-level measuring points, and to mark each well's "official" location.

4.2 Well Fitness Checklists

To facilitate the well fitness evaluations, standardized well fitness checklists were developed. To hasten the evaluation, all INEL wells with similar construction requirements were grouped into one of five well construction categories (see Section 4.3). Grouping wells by category allowed wells within each category to be evaluated using consistent criteria established by pertinent standards and INEL-specific BMPs. The construction data for each well were then evaluated against the checklist for the corresponding category.

Each well fitness checklist is divided into sections that emphasize the applicable requirements or guidelines (outlined above) for the corresponding well construction category. Because the well fitness checklists are designed to stand alone and be understandable without a user's guide, the appropriate subsections of the regulations used to evaluate INEL wells are highlighted and paraphrased on the checklist. Guidelines in the RCRA Technical Enforcement Guidance Document and the INEL-specific BMPs were also paraphrased in the form of specific questions.

4.3 Well Construction Categories

For the purposes of the WFE, the wells listed in the CWS were divided into five well construction categories. The sole purpose for adopting these categories was to expedite the evaluation process. Categorization of wells in the CWS remain as shown under the heading "Standard Well Types" in Table 1. The well construction categories used for the WFE are as follows:

- Aquifer and perched water wells (completed in saturated zones below the surficial sediments)

- Miscellaneous

  - Surface sediment wells (entire well is completed in surficial sediments)
  - Gas ports
  - Neutron access
  - Scientific instrumentation (e.g., radioactivity monitoring ports, soil moisture, and vapor ports)

- Production/potable wells

- Deep injection wells

- Abandoned wells and boreholes.

The miscellaneous category, with the exception of surface sediment wells, consists of cased or uncased boreholes that are usually equipped with specialized instruments and were installed either to detect subsurface releases or for scientific investigations. These wells do not meet the strict definition of a well in State of Idaho regulations and therefore were not considered to be wells for the purpose of this study.

The surface sediment wells category includes observation and monitoring wells constructed to monitor water at or above the surface sediment/basalt interface. These wells are often associated with monitoring at percolation ponds or tanks. Surface sediment wells that are more than 18 ft deep meet the state definition of a well. However, for the purpose of this study, such wells were classified as miscellaneous because, in most cases, these wells would be classified as deficient because they do not have surface seals as required by State well construction standards. Since these well are constructed in the relatively thin and porous surface sediments rather than in the relatively deep and impermeable vadose zone above the Snake River Plain Aquifer, it is believed that these wells do not pose a cross-contamination threat. Therefore, although they may not meet the strict requirements of the state's well construction standards, they satisfy the intent of the standards, which is to prevent degradation of groundwater.

4.4 Sources of Well Information

The primary sources of information used in the WFE were the CWS data base, CWS repository files, and the CWS report (Sehlke et al. 1992). Other important sources of information were the following:

- USGS personnel, well files, Site schedules, and reports
- Communications with facility environmental personnel
- The INEL Well Catalog and the Well Upgrade Summary for the surface upgrades installed in 1992 (Beard 1992a, 1992b)
- The INEL Groundwater Monitoring Plan (Sehlke and Bickford 1993)
- ERIS facility and Site-wide maps.

This information was used to update, verify, and correct the well drilling and construction information in the CWS repository, the CWS data base, and the CWS report.

4.5 Evaluation of Well Data

The appropriate information for each well contained in the CWS report was evaluated against the appropriate well fitness checklist. If the correctness or completeness of the data on a given well in the CWS report was considered questionable, the data were reviewed against the information contained in the corresponding CWS repository file. If this review was inconclusive, personnel

from the organization responsible for operating or maintaining the well in question were contacted for clarification. Based on the results of these evaluations, each well's "fitness-for-use" was determined, and corrective actions were developed as necessary. The evaluations and recommendations are summarized in Appendix A and are reported in detail in Appendix B.

4.6 As-Builts

Using data from the CWS data base, personnel used commercially available Geotechnical Graphics System software to develop "as-built" drawings and lithological logs for each well that had sufficient information. For quality assurance, the printed images were then compared to the designs in the CWS report to make sure that the data were correct.

4.7 Example of the Review Process— State Well Construction Regulations

Because the State of Idaho well construction standards are designed to protect groundwater, all INEL wells were evaluated against these standards. Because these regulations focus on protecting the hydrogeological regime, the critical issue in the evaluation was to determine if a well or borehole was providing a conduit for the migration of contaminated surface water or perched groundwater across impermeable or low-permeability geologic boundaries. State regulations require that a surface seal be installed from the ground to a depth of 18 ft below land surface, or to the top of bedrock, whichever is greater. In addition, the casings and borehole must be sufficiently sealed to prevent the migration of poor-quality perched water. In most cases, personnel employed the conservative assumption during the WFE that all surface and perched water was either contaminated or of lower quality than the Snake River Plain Aquifer, and consequently should be sealed out of the well or borehole.

The first step in evaluating the wells with respect to State regulations was to determine the location of each well and its proximity to potential sources of surface and perched water. Both natural and man-made sources of water were considered and include the following:

- The Big Lost River and Birch Creek
- The sinks and playas near Test Area North
- The spreading areas southwest of the Radioactive Waste Management Complex (RWMC)
- Irrigation canals in the eastern part of the INEL Site
- Percolation ponds and sewage lagoons
- Injection wells
- Aboveground and underground pipes and storage tanks at the facilities

- Environmentally controlled areas

- "Drainage basins" and depressions in which surface water runoff could be ponded.

For these evaluations, the assumptions were made that the Big Lost River and Birch Creek were flowing and that the RWMC spreading areas were filled with water. If a well was located near areas of known or potential surface or perched water, then the next step was to determine if the well was adequately sealed. If it was, then the well was considered to be in general compliance with State regulations. If the well was not properly sealed, an estimate was made of the maximum depth to which an impact could be expected from inflowing perched or surface water, and an appropriate seal depth was recommended.

A variance request (see Section 6) is recommended if the unsealed well is located outside of the facilities and beyond the lateral extent of potential surface or perched water (Sehlke and Bickford 1993). At a minimum, a surface seal is recommended from the ground to the surface sediment/basalt interface for most wells located within operational areas due to the potential for releases (e.g., from pipelines, storage tanks, and spills). Two major exceptions to this procedure are recommended. A variance request is recommended for unsealed surface sediment wells since they do not cross a surface sediment/basalt contact and will not normally increase the probability of cross-contamination. A variance also is recommended for some wells situated between the security and animal fences at the Idaho Chemical Processing Plant since they are not near any plant operations.

In evaluating the wells with respect to State regulations, deficiencies are considered to be minor if they were easily remedied, complied with the intent of the regulation, or did not affect the soundness of the well. The following are examples of deficiencies that are considered minor:

- Casings that extend between 8 in. and the required 12 in. above the ground surface

- Casings that have no stick-up, but are adequately sealed at the surface by a concrete pad or annular seal, or are protected inside a larger-diameter casing

- Borehole diameters that are documented to be less than 2 in. larger than the surface casings (instead of the required 2 in. larger), because the reported borehole size is usually the auger or bit size and the actual borehole is larger than this in most cases

- Casings that extend to a depth slightly less than the required 18 ft below land surface if the casing is installed well into the bedrock

- The lack of documentation for certain casing specifications such as thickness, joint type, and stick-ups.

5. CRITICAL/NONCRITICAL ISSUES

5.1 RCRA Guidelines

INEL groundwater monitoring wells that belong to one or more of the following categories were evaluated against the well construction guidelines outlined in the RCRA Groundwater Technical Enforcement Guidance Document (TEGD) (EPA 1986):

- Wells currently used for monitoring groundwater under RCRA or Comprehensive Environmental Response, Compensation, and Liability Act guidelines
- Wells proposed in the INEL Groundwater Monitoring Plan for DOE Order 5400.1 (DOE 1988) compliance monitoring
- Wells recently installed and constructed to RCRA standards.

A total of 105 INEL groundwater monitoring wells were evaluated against TEGD guidelines. However, it should be noted that using the TEGD guidelines to evaluate INEL wells was done only as a BMP because these guidelines are not promulgated regulations. Therefore, these standards are not legally applicable unless they are mandated for implementing regulatorially required monitoring at a RCRA treatment, storage, and disposal facility, or are specifically required to be implemented as an applicable, relevant, and appropriate requirement under the INEL Federal Facilities Agreement and Compliance Order.

Although TEGD guidelines are not legally binding, the TEGD is useful for benchmarking monitoring well construction because, despite its shortcomings, it gives many guidelines that can help ensure that representative samples will be collected. Its usefulness is demonstrated by the fact that almost all INEL groundwater monitoring wells constructed in the past 5 years have used the TEGD guidelines as a model.

5.2 Length of Monitoring Interval

With respect to the TEGD guidelines, a critical issue is the INEL's ability to obtain groundwater samples that are representative of the local aquifer conditions from wells with a long monitoring interval. Many USGS wells that were installed for observational purposes have intake lengths of 100 to 200 ft. A long monitoring interval is generally unacceptable for RCRA monitoring because the excessive length may allow for the dilution of potential contaminants. Long intervals also are more likely to include interbeds and zones with extremely variable permeability such as cinder zones, broken zones, and dense basalt, making the identification of the actual contaminant pathways more difficult.

Although the precise length of the sampling interval that should be used for compliance monitoring remains unresolved, 30 ft is the maximum screen length considered acceptable for RCRA monitoring for the WFE. In most cases, a variance should be requested for wells with monitoring intervals between 30 and 60 ft that do not cross sedimentary interbeds or other distinct geologic barriers to vertical flow. Wells with monitoring intervals greater than 60 ft in

length are not recommended for RCRA use. However, these wells may be fully suitable for the USGS's observational monitoring program, the INEL Federal Facilities Agreement and Compliance Order (if they meet the environmental restoration project-specific data quality objectives), and DOE Order 5400.1 (DOE 1988) monitoring if the purpose of the monitoring is to establish regional trends.

Retrofitting wells with large sampling intervals is not recommended because most of the wells are associated with the long-standing USGS regional groundwater monitoring and hydrogeological characterization programs. The USGS has collected data from some INEL wells for more than 30 years, and has accumulated an extensive data base of historical water quality information on the Snake River Plain Aquifer. Changes in the construction of these wells could affect the sampling conditions in the wells, and perhaps reduce their future value for defining long-term aquifer trends.

5.3 Casing and Screen Material

Since most wells at the INEL are completed in competent bedrock, representative groundwater samples (sediment-free) can be obtained from wells that are completed without a well screen or filter pack. If it can be demonstrated that the borehole is competent, that cross-contamination is not occurring between distinct geological strata, and that representative samples can be obtained from the discrete zone of interest, then screens and filter packs should not be required.

The use of carbon steel casing and screens in the older INEL wells may cause corrosion problems. However, the following factors may mitigate some concerns related to the use of carbon steel in monitoring wells. The factors, documented in Stormberg (1990) and in Mattick and Doornbos (1990), are the following:

- An EG&G Idaho study involving a small number of wells at the RWMC facility indicated that no significant differences existed between the concentrations of metals detected in groundwater samples from wells constructed with carbon steel and those constructed with stainless steel, a preferred RCRA material.

- The pH of the groundwater at the INEL ranges from about 7 to 8. Water with fairly neutral pH does not have a high corrosive potential.

- Iron concentrations in groundwater samples collected from older wells constructed with carbon steel have not displayed an increasing trend over time, indicating that deterioration of the carbon steel casing is not influencing water quality results.

- Most of the wells constructed of carbon steel have maintained their structural integrity for 30 years, which complies with RCRA guidelines. However, recent downhole video camera inspections conducted by the USGS indicate that some carbon steel wells may indeed be experiencing corrosion problems.

Additional downhole inspections should be conducted before a final determination is made on the acceptability of using carbon steel casing at the INEL.

5.4 Noncritical Issues

5.4.1 Minor RCRA Well Construction Deficiencies

Wells that fail to meet noncritical RCRA guidelines may be defined as having minor deficiencies. Examples of minor well construction deficiencies include lack of documentation on (a) decontamination procedures used during well drilling and construction, (b) drilling fluids used during well drilling, and (c) the procedures used for developing older wells. Although these factors can affect the integrity of sampling results, this information was not generally documented or is missing for the older INEL wells. Although it is assumed that well construction practices previously did not adhere to the strict quality assurance and quality control standards that today's monitoring well construction requires, these older wells have been sufficiently developed through repeated sampling events to permit the collection of representative groundwater samples. Therefore, the lack of information on drilling and development procedures for older wells is considered a minor deficiency.

The use of PVC for water level measuring pipes and the use of the Hydrostar pumps are considered minor deficiencies because this equipment can be readily replaced if its use is suspected to affect the sampling results. Use of PVC components is not preferred for wells in which volatile organics are monitored because some studies indicate that PVC may leach and absorb volatile organic compounds. However, PVC may be acceptable for monitoring other parameters such as trace metals and nonvolatile organics. The use of the Hydrostar pump also may affect the validity of groundwater samples. A study by the State of Idaho concluded that the use of this pump may add chromium, a common contaminant at the INEL, to the groundwater samples (Barrash 1991).

5.4.2 Well Development

The well development criterion of < 5 nephelometric turbidity units (NTUs) discussed in the TEGD is based on a secondary drinking water standard and may not be applicable to some contaminated groundwater. For example, chlorinated solvents form an emulsion in water. Water samples contaminated with these solvents can be expected to be cloudy. Although cloudy water would exceed the 5-NTU criterion, it could still be representative of water from the region of interest. In the vicinity of the Test Area North TSF-05 injection well where organic chemicals such as trichloroethylene were injected directly into the aquifer, the 5-NTU criterion may not be achievable. Therefore, this criterion should be considered a reference point rather than a critical requirement.

6. WELL FITNESS VARIANCES

The term "variance," as used in the WFE, implies that when a well is found to be deficient, some sort of official approval is required to continue using the well for its intended purpose. Variances may require formal approval from a regulatory agency or a recommendation from the INEL Groundwater Committee with concurrence from the appropriate DOE field office. Formal approval from a regulatory agency will be required only when a deficient well is governed by another Federal agency or by regulations for which the State of Idaho has primacy (e.g., a well

governed by the Safe Drinking Water Act). Variances for wells governed strictly by DOE standards will be submitted to the INEL Groundwater Committee as a BMP. If the INEL Groundwater Committee agrees with the request for variance, the recommendation will be forwarded to the applicable DOE field office for concurrence.

For example, if a variance is needed for a potable water well, it must be obtained through the State of Idaho, since the State of Idaho has Safe Drinking Water Act primacy. For all cases in which the construction standards do not meet a specific regulatory requirement, a variance will be obtained from the appropriate regulatory agency. However, if a variance is needed for a well that is governed solely under DOE's authority [e.g., groundwater monitoring well being used for DOE Order 5400.1 (DOE 1988) compliance monitoring], the variance will be obtained from DOE management.

7. QUALITY ASSURANCE

The CWS data base, the CWS repository, and the CWS report are compendiums of a large quantity of well data generated by numerous organizations prior to and during the operation of the INEL. They represent a multi-year effort of compiling and evaluating data that had been stored in various formal and informal file systems, personal computers, "bottom desk drawers," and cardboard boxes. To ensure that the quality of the CWS information is as complete as possible and is of the highest possible quality, the CWS report was subjected to Site-wide review during its development and subsequent revisions. In addition, the WFE was again subjected to Site-wide review for accuracy and completeness. However, the quality and completeness of data represented in this report are dependant on the quality and completeness of the well records maintained by the various INEL organizations and the CWS Program's ability to find and properly evaluate this information. Where questions were raised concerning data quality or completeness during the development of the CWS and WFE, the appropriate personnel were contacted for clarification. However, field verification of the well data was not conducted as part of this study.

All evaluations of well data were based on best professional judgment using the best records available. However, in a number of cases, incomplete or conflicting information made it difficult to properly evaluate the source information. Therefore, all well information used to compile the WFE is being maintained in the CWS repository for future reference. If questions arise concerning the quality or completeness of the data or concerning the evaluations contained in this report, the CWS Program may be contacted and copies of the well files in question will be made available for review. Since the WFE is a living document, the data and evaluations will be updated as necessary to correct errors and omissions, and to incorporate new information.

8. FITNESS-FOR-USE SUMMARY FOR INEL WELLS

Well construction records for 647 wells and boreholes installed on the INEL were evaluated to determine each well's fitness for use. A summary of these evaluations is documented in Appendix A. Copies of the detailed well fitness evaluation checklists and well construction "as-built" drawings are documented in Appendix B. An overview of the results of these evaluations is given in Sections 8.1 through 8.5. It should be noted that since some wells were classified in more than one category for a given characteristic, the sum of the numbers or percentages in a

given category may be greater than the total number of wells or 100%. Out of a total of 229 aquifer or perched water wells, 11 had more than one recommendation (for example, both remediation *and* running a log were recommended for well USGS 117).

8.1 Aquifer, Perched Water, and Deep Injection Wells

Of the 647 wells evaluated, 35% (229 wells) are classified as aquifer, perched water, or deep injection wells. Of the 229 wells, 73% (167 wells) are monitoring/observation wells completed in the aquifer, 1% (3 wells) are injection wells completed in the aquifer, 23% (53 wells) are monitoring/observation wells completed in a perched water zone, 2% (5 wells) are injection wells completed in the vadose zone, and less than 1% (1 well) is a monitoring/observation well completed in the vadose zone. The following determinations were made for these wells: 26% (60 wells) satisfy current Idaho State well construction regulations, 54% (124 wells) require a variance for noncritical deficiencies, 21% (47 wells) require remediation, and 3% (7 wells) should either be upgraded or considered for abandonment.

8.2 Miscellaneous Wells and Boreholes

Of the total 647 wells, 43% (280) wells or open boreholes at the INEL are classified as "miscellaneous." Of these, 11% (31 wells) are completed in vadose zone and 89% (249 wells) are completed in the surface sediments. No wells are completed in the aquifer. In addition, 56% (157 wells) are classified as surface sediment wells, 6% (16) are classified as open boreholes, and 38% (107) are classified as "ports" or "scientific instrumentation."

Of the 157 surface sediment wells, 99% (155 wells) meet the State definition of a well (the remaining two surface sediment wells are less than 18 ft deep and therefore do not meet the State definition of a well). These 155 wells were evaluated against State well construction regulations. The results show that 8% (13 wells) comply with applicable State regulations, 90% (140 wells) need a variance, and 2% (3 wells) require remediation or abandonment.

All 107 "ports" or "scientific instrumentation" were compared with State well construction regulations solely to determine if they promoted surface or perched water migration across geologic boundaries. Only one of the ports is considered to be not adequately sealed and is recommended for remediation or abandonment.

8.3 Wells Evaluated to RCRA Guidelines

A total of 117 wells were evaluated against RCRA standards. Of these, 90% (105 wells) are completed in the aquifer or a perched water zone, 38% (44 wells) are in compliance with RCRA guidelines, 25% (29 wells) are useable if a variance is granted, 7% (8 wells) need remediation, and the remaining 32% (38 wells) are not recommended for use, mainly due to the length of their monitoring intervals.

8.4 Production/Potable Wells

A total of 33 production/potable water wells were evaluated with respect to both State well construction standards and State drinking water regulations. Five of these wells are currently inactive but are included in the following summary: 15% (5 wells) comply with both State construction and drinking water standards, less than 9% (3 wells) require a variance under both regulations, 48% (16 wells) are recommended for remediation or an alternate use under one or both of these regulations, and 27% (9 wells) require maintenance under the State regulations.

8.5 Abandoned, Backfilled, and Destroyed Wells

A total of 105 wells and boreholes are listed in the CWS data base as abandoned, backfilled, or destroyed. These wells and boreholes also were evaluated against the State of Idaho well abandonment regulations. State regulations require all abandoned wells to be filled with an appropriate material such as cement grout or bentonite slurry. The casing may be left in the well or pulled.

Of these 105 wells, 58% (61 wells) are completed in surface sediments and are located in proximity to the Test Reactor Area or Idaho Chemical Processing Plant percolation ponds. In most cases, the abandonment procedures used for these wells were not documented, but the wells were probably destroyed during construction activities. These wells are not considered problems since they were completed above the surface sediment/basalt contact and will not promote the migration of contaminants across a geologic interface. Thirty percent (32 wells) are completed in the vadose zone, and 9% (9 wells) are completed in the aquifer. The deeper wells, which have been abandoned, have been sealed with cement grout to the ground surface as specified in the regulations. Sufficient information could not be obtained to evaluate three wells (listed as "NF" in Appendix A).

9. REFERENCES

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Index A

Alphabetical List of Wells Evaluated

WELL NAME	LOCATION	WELL NAME	LOCATION
76-1	RWMC	ACID PIT-P03	RWMC
76-2	RWMC	ACID PIT-P04	RWMC
76-3	RWMC	ACID PIT-P05	RWMC
76-4	RWMC	ACID PIT-P06	RWMC
76-4A	RWMC	ACRE I WELL	ARA
76-5	RWMC	ANL-M01	ANL-W
76-6	RWMC	ANL-M02	ANL-W
77-1	RWMC	ANL-M03	ANL-W
77-2	RWMC	ANL-M04	ANL-W
78-1	RWMC	ANL-M05	ANL-W
78-2	RWMC	ANL-M06	ANL-W
78-3	RWMC	ANL-M07	ANL-W
78-4	RWMC	ANL-M08	ANL-W
78-5	RWMC	ANL-M09	ANL-W
78-6	RWMC	ANL-M10	ANL-W
79-1	RWMC	ANL-M11	ANL-W
79-2	RWMC	ANP-01	TSF
79-3	RWMC	ANP-02	TSF
81-01	ICPP	ANP-03	TSF
81-02	ICPP	ANP-04	IET
81-04	ICPP	ANP-05	TAN
81-05	ICPP	ANP-06	TAN
81-06	ICPP	ANP-07	TAN
81-07	ICPP	ANP-08	WRRTF
81-08	ICPP	ANP-09	TAN
81-09	ICPP	ANP-10	TAN
81-10	ICPP	ARA-1	ARA
81-11	ICPP	ARA-3	ARA
81-12	ICPP	ARBOR TEST	ANL-W
81-13	ICPP	BADGING FACILITY WELL	INEL SOUTH
81-14	ICPP	C-01	RWMC
81-15	ICPP	C-02	RWMC
81-16	ICPP	CFA DISPOSAL WELL	CFA
81-17	ICPP	CFA-1	CFA
81-18	ICPP	CFA-2	CFA
81-19	ICPP	COREHOLE 1	INEL SOUTH
81-20	ICPP	COREHOLE 2A	INEL MIDDLE
81-21	ICPP	CPP-01	ICPP
81-22	ICPP	CPP-02	ICPP
81-23	ICPP	CPP-03	ICPP
81-24	ICPP	CPP-04	ICPP
8801D	RWMC	CPP-33-1	ICPP
8801T	RWMC	CPP-33-1L	ICPP
8802D	RWMC	CPP-33-2	ICPP
8901D	RWMC	CPP-33-2L	ICPP
8902D	RWMC	CPP-33-3	ICPP
ACID PIT-I07	RWMC	CPP-33-3L	ICPP
ACID PIT-I08	RWMC	CPP-33-4-1	ICPP
ACID PIT-I09	RWMC	CPP-33-4-2	ICPP
ACID PIT-I10	RWMC	CPP-33-5L	ICPP
ACID PIT-I11	RWMC	CPP-55-06	ICPP
ACID PIT-I12	RWMC	CPP-A01	ICPP
ACID PIT-I13	RWMC	CPP-A02	ICPP
ACID PIT-I14	RWMC	CPP-A03	ICPP
ACID PIT-I15	RWMC	CPP-A04	ICPP
ACID PIT-I16	RWMC	CPP-A05	ICPP
ACID PIT-P01	RWMC	CPP-A06	ICPP
ACID PIT-P02	RWMC	CPP-A07	ICPP

WELL NAME	LOCATION	WELL NAME	LOCATION
CPP-A08	ICPP	GIN-03	WRRTF
CPP-A09	ICPP	GIN-04	WRRTF
CPP-A10	ICPP	GIN-05	WRRTF
CPP-A11	ICPP	GIN-06	CTF
CPP-A12	ICPP	GIN-07	CTF
CPP-A13	ICPP	GIN-08	CTF
CPP-A14	ICPP	GIN-09	CTF
CPP-A15	ICPP	GIN-09AU	CTF
CPP-A16	ICPP	GIN-10	CTF
CPP-A40	ICPP	GIN-11	CTF
CPP-A41	ICPP	GIN-12	CTF
CPP-A42	ICPP	GIN-12AU	CTF
CPP-A43	ICPP	GIN-13	CTF
CPP-A44	ICPP	GIN-14	CTF
CPP-A45	ICPP	GIN-15	CTF
CPP-A46	ICPP	GIN-16	CTF
CPP-A47	ICPP	GIN-17	CTF
CPP-A48	ICPP	GIN-18	CTF
CPP-A49	ICPP	GIN-19	CTF
CPP-A50	ICPP	GIN-20	CTF
CPP-A51	ICPP	HIGHWAY 3	INEL SOUTH
CPP-A52	ICPP	INEL-1	INEL MIDDLE
CPP-A53-07	ICPP	LF2-01	CFA
CPP-A53-11	ICPP	LF2-02	CFA
CPP-A53-19	ICPP	LF2-03	CFA
CPP-A53-20	ICPP	LF2-04	CFA
CPP-A56	ICPP	LF2-05	CFA
CPP-A59	ICPP	LF2-06	CFA
CPP-B2	ICPP	LF2-07	CFA
CPP-B7	ICPP	LF2-08	CFA
CWP-01	TRA	LF2-09	CFA
CWP-02	TRA	LF2-10	CFA
CWP-03	TRA	LF2-11	CFA
CWP-04	TRA	LF2-12	CFA
CWP-05	TRA	LF2-12A	CFA
CWP-06	TRA	LF3-01	CFA
CWP-07	TRA	LF3-02	CFA
CWP-08	TRA	LF3-03	CFA
CWP-09	TRA	LF3-04	CFA
D-02	RWMC	LF3-05	CFA
D-06	RWMC	LF3-06	CFA
D-06A	RWMC	LF3-07	CFA
D-10	RWMC	LF3-08	CFA
D-15	RWMC	LF3-09	CFA
DH-1B	INEL MIDDLE	LF3-10	CFA
DH-2A	INEL MIDDLE	LF3-11	CFA
EBR II #1	ANL-W	LF3-11A	CFA
EBR II #2	ANL-W	LOFT-A01	CTF
EBR-1	EBR	LOFT-A02	CTF
EOCR INJECTION WELL	INEL SOUTH	LOFT-A03	CTF
EOCR PRODUCTION WELL	INEL SOUTH	LOFT-A04	CTF
FET-1	CTF	LOFT-A05	CTF
FET-2	CTF	LOFT-A06	CTF
FET-3	CTF	LOFT-A07	CTF
FIRE STATION WELL	INEL SOUTH	LOFT-A08	CTF
GIN-01	WRRTF	LOFT-A09	CTF
GIN-02	WRRTF	LOFT-A10	CTF

WELL NAME	LOCATION	WELL NAME	LOCATION
LOFT-A11	CTF	SB-02	TRA
LOFT-A12	CTF	SB-03	TRA
LOFT-A13	CTF	SB-04	TRA
LOFT-A14	CTF	SB-05	TRA
LOFT-A15	CTF	SB-06	TRA
LOFT-A16	CTF	SB-07	TRA
LOFT-A17	CTF	SB-08	TRA
LOFT-A18	CTF	SB-09	TRA
LOFT-A19	CTF	SITE-04	INEL SOUTH
LOFT-A20	CTF	SITE-06	INEL MIDDLE
LPTF DISPOSAL	WRRTF	SITE-09	INEL SOUTH
M1SA	RWMC	SITE-14	INELMIDDLE
M3S	RWMC	SITE-16	ANL-W
M4D	RWMC	SITE-17	INEL MIDDLE
M6S	RWMC	SITE-19	TRA
M7S	RWMC	SPERT DISP 1	PBF
M10S	RWMC	SPERT DISP 2	PBF
MTR TEST	TRA	SPERT DISP 3	PBF
NA-89-1	RWMC	SPERT-1	PBF
NA-89-2	RWMC	SPERT-2	PBF
NA-89-3	RWMC	SWPP-01	ICPP
NO NAME 01	TAN	SWPP-01A	ICPP
NPR TEST	INEL SOUTH	SWPP-02	ICPP
NRF-1	NRF	SWPP-02A	ICPP
NRF-2	NRF	SWPP-03	ICPP
NRF-3	NRF	SWPP-03A	ICPP
NRF-4	NRF	SWPP-04	ICPP
NRF-S5G TEST WELL	NRF	SWPP-04A	ICPP
NTP-AREA 2	ARA	SWPP-05	ICPP
OMRE	INEL SOUTH	SWPP-05A	ICPP
OWSLEY WELL 2	TAN	SWPP-06	ICPP
P&W-1	TAN	SWPP-06A	ICPP
P&W-2	TAN	SWPP-07	ICPP
P&W-3	TAN	SWPP-07A	ICPP
PA-01	RWMC	SWPP-08	ICPP
PA-02	RWMC	SWPP-08A	ICPP
PBF CHEM. WASTE INJ WELL	PBF	SWPP-09	ICPP
PBF CLEAN H_2O INJ WELL	PBF	SWPP-09A	ICPP
PSTF TEST	TAN	SWPP-10	ICPP
PW-1	ICPP	SWPP-10A	ICPP
PW-2	ICPP	SWPP-11	ICPP
PW-3	ICPP	SWPP-11A	ICPP
PW-4	ICPP	SWPP-12	ICPP
PW-5	ICPP	SWPP-12A	ICPP
PW-6	ICPP	SWPP-13	ICPP
PW-7	TRA	SWPP-13A	ICPP
PW-8	TRA	SWPP-14	ICPP
PW-9	TRA	SWPP-14A	ICPP
PW-10	TRA	SWPP-15	ICPP
PW-11	TRA	SWPP-15A	ICPP
PW-12	TRA	SWPP-16	ICPP
PW-13	TRA	SWPP-16A	ICPP
PW-14	TRA	SWPP-17	ICPP
PZ-1	TRA	SWPP-17A	ICPP
RIFLE RANGE WELL	INEL SOUTH	SWPP-18	ICPP
RWMC PRODUCTION	RWMC	SWPP-18A	ICPP
SB-01	TRA	SWPP-19	ICPP

WELL NAME	LOCATION	WELL NAME	LOCATION
SWPP-19A	ICPP	TRA-05A	TRA
SWPP-20	ICPP	TRA-06	TRA
SWPP-20A	ICPP	TRA-06-1	TRA
SWPP-21	ICPP	TRA-06A	TRA
SWPP-21A	ICPP	TRA-07	TRA
SWPP-22	ICPP	TRA-08	TRA
SWPP-23	ICPP	TRA-A01	TRA
SWPP-24	ICPP	TRA-A02	TRA
SWPP-25	ICPP	TRA-A03	TRA
SWPP-26	ICPP	TRA-A04	TRA
SWPP-27	ICPP	TRA-A05	TRA
T-12	RWMC	TRA-A06	TRA
T-23	RWMC	TRA-A07	TRA
TAN DRAINAGE DISP. 01	TSF	TRA-A08	TRA
TAN DRAINAGE DISP. 02	TSF	TRA-A09	TRA
TAN DRAINAGE DISP. 03	CTF	TRA-A10	TRA
TAN DRAINAGE DISP. 04	TSF	TRA-A11	TRA
TAN-03	TSF	TRA-A12	TRA
TAN-04	TSF	TRA-A13	TRA
TAN-05	TSF	TRA-A14	TRA
TAN-06	TAN	TRA-A15	TRA
TAN-07	TSF	TRA-A16	TRA
TAN-08	TSF	TRA-A17	TRA
TAN-09	TSF	TRA-A18	TRA
TAN-10	TSF	TRA-A19	TRA
TAN-10A	TSF	TRA-A20	TRA
TAN-11	TSF	TRA-A21	TRA
TAN-12	TSF	TRA-A22	TRA
TAN-13	TSF	TRA-A23	TRA
TAN-13A	TSF	TRA-A24	TRA
TAN-14	TSF	TRA-A25	TRA
TAN-15	TAN	TRA-A26	TRA
TAN-16	TSF	TRA-A27	TRA
TAN-17	TAN	TRA-A28	TRA
TAN-18	TSF	TRA-A29	TRA
TAN-19	TSF	TRA-A30	TRA
TAN-20	TSF	TRA-A31	TRA
TAN-21	TSF	TRA-A32	TRA
TAN-22	TSF	TRA-A33	TRA
TAN-22A	TSF	TRA-A34	TRA
TAN-23	TSF	TRA-A35	TRA
TAN-23A	TSF	TRA-A36	TRA
TAN-24	WRRTF	TRA-A37	TRA
TAN-24A	WRRTF	TRA-A38	TRA
TCH-1	TSF	TRA-A39	TRA
TCH-2	TAN	TRA-A40	TRA
TESTHOLE 0	RWMC	TRA-A41	TRA
TH-01	RWMC	TRA-A42	TRA
TH-02	RWMC	TRA-A43	TRA
TH-03	RWMC	TRA-A44	TRA
TH-04	RWMC	TRA-A45	TRA
TH-05	RWMC	TRA-A46	TRA
TRA DISPOSAL	TRA	TRA-A47	TRA
TRA-01	TRA	TRA-A48	TRA
TRA-02	TRA	TRA-A49	TRA
TRA-03	TRA	TRA-A50	TRA
TRA-04	TRA	TRA-A51	TRA

WELL NAME	LOCATION	WELL NAME	LOCATION
TRA-A52	TRA	USGS-019	INEL MIDDLE
TRA-A53	TRA	USGS-020	ICPP
TRA-A54	TRA	USGS-021	INEL MIDDLE
TRA-A55	TRA	USGS-022	INEL SOUTH
TRA-A56	TRA	USGS-023	INEL MIDDLE
TRA-A57	TRA	USGS-024	TSF
TRA-A58	TRA	USGS-025	TAN
TRA-A59	TRA	USGS-026	TAN
TRA-A60	TRA	USGS-027	INEL NORTH
TRA-A61	TRA	USGS-028	INEL MIDDLE
TRA-A62	TRA	USGS-029	INEL MIDDLE
TRA-A63	TRA	USGS-030A, 30B, 30C	INEL MIDDLE
TRA-A64	TRA	USGS-031	INEL MIDDLE
TRA-A65	TRA	USGS-032	INEL MIDDLE
TRA-A66	TRA	USGS-033	INEL MIDDLE
TRA-A67	TRA	USGS-034	ICPP
TRA-A68	TRA	USGS-035	ICPP
TRA-A69	TRA	USGS-036	ICPP
TRA-A70	TRA	USGS-037	ICPP
TRA-A71	TRA	USGS-038	ICPP
TRA-A72	TRA	USGS-039	ICPP
TRA-A73	TRA	USGS-040	ICPP
TRA-A74	TRA	USGS-041	ICPP
TRA-A75	TRA	USGS-042	ICPP
TRA-A76	TRA	USGS-043	ICPP
TRA-A77	TRA	USGS-044	ICPP
TRA-A78	TRA	USGS-045	ICPP
TRA-A79	TRA	USGS-046	ICPP
TRA-A80	TRA	USGS-047	ICPP
TRA-A81	TRA	USGS-048	ICPP
TRA-A82	TRA	USGS-049	ICPP
TRA-A83	TRA	USGS-050	ICPP
TRA-A84	TRA	USGS-051	ICPP
TRA-A85	TRA	USGS-052	ICPP
TRA-A86	TRA	USGS-053	TRA
TRA-A87	TRA	USGS-054	TRA
TRA-A88	TRA	USGS-055	TRA
TSFAG-1	TSF	USGS-056	TRA
TSFAG-2	TSF	USGS-057	ICPP
TSFAG-3	TSF	USGS-058	TRA
TSFAG-4	TSF	USGS-059	ICPP
TSFAG-5	TSF	USGS-060	TRA
TSFAG-6	TSF	USGS-061	TRA
TSFAG-7	TSF	USGS-062	TRA
TW-1	RWMC	USGS-063	TRA
USGS-001	INEL SOUTH	USGS-064	TRA
USGS-002	INEL SOUTH	USGS-065	TRA
USGS-003A	INEL MIDDLE	USGS-066	TRA
USGS-004	INEL MIDDLE	USGS-067	ICPP
USGS-005	INEL SOUTH	USGS-068	TRA
USGS-006	INEL MIDDLE	USGS-069	TRA
USGS-007	TAN	USGS-070	TRA
USGS-009	INEL SOUTH	USGS-071	TRA
USGS-012	INEL MIDDLE	USGS-072	TRA
USGS-015	INEL MIDDLE	USGS-073	TRA
USGS-017	INEL MIDDLE	USGS-074	TRA
USGS-018	INEL MIDDLE	USGS-075	TRA

WELL NAME	LOCATION
USGS-076	TRA
USGS-077	ICPP
USGS-078	TRA
USGS-079	TRA
USGS-080	TRA
USGS-081	ICPP
USGS-082	ICPP
USGS-083	INEL SOUTH
USGS-084	TRA
USGS-085	ICPP
USGS-086	INEL SOUTH
USGS-087	RWMC
USGS-088	RWMC
USGS-089	RWMC
USGS-090	RWMC
USGS-091	RWMC
USGS-092	RWMC
USGS-093	RWMC
USGS-093A	RWMC
USGS-094	RWMC
USGS-095	RWMC
USGS-096	RWMC
USGS-096A	RWMC
USGS-096B	RWMC
USGS-097	NRF
USGS-098	INEL MIDDLE
USGS-099	INEL MIDDLE
USGS-100	ANL-W
USGS-101	INEL SOUTH
USGS-102	NRF
USGS-103	INEL SOUTH
USGS-104	INEL SOUTH
USGS-105	INEL SOUTH
USGS-106	INEL SOUTH
USGS-107	INEL SOUTH
USGS-108	INEL SOUTH
USGS-109	INEL SOUTH
USGS-110	INEL SOUTH
USGS-111	ICPP
USGS-112	ICPP
USGS-113	ICPP
USGS-114	ICPP
USGS-115	ICPP
USGS-116	ICPP
USGS-117	RWMC
USGS-118	RWMC
USGS-119	RWMC
USGS-120	RWMC
USGS-121	ICPP
USGS-122	ICPP
USGS-123	ICPP
VZT-01	RWMC
W-01	RWMC
W-02	RWMC
W-03	RWMC
W-04	RWMC
W-05	RWMC
W-06	RWMC
W-08	RWMC
W-09	RWMC
W-10	RWMC
W-11	RWMC
W-12	RWMC
W-13	RWMC
W-16	RWMC
W-17	RWMC
W-18	RWMC
W-19	RWMC
W-20	RWMC
W-22	RWMC
W-23	RWMC
W-24	RWMC
W-25	RWMC
WATER SUPPLY FOR INEL 1	INEL MIDDLE
WWW1	RWMC

Index B

List of Wells Evaluated by Area or General Location

ANL-W
ANL-M01
ANL-M02
ANL-M03
ANL-M04
ANL-M05
ANL-M06
ANL-M07
ANL-M08
ANL-M09
ANL-M10
ANL-M11
ARBOR TEST
EBR II #1
EBR II #2
SITE-16
USGS-100

ARA
ACRE I WELL
ARA-1
ARA-3
NTP-AREA 2

CFA
CFA DISPOSAL WELL
CFA-1
CFA-2
LF2-01
LF2-02
LF2-03
LF2-04
LF2-05
LF2-06
LF2-07
LF2-08
LF2-09
LF2-10
LF2-11
LF2-12
LF2-12A
LF3-01
LF3-02
LF3-03
LF3-04
LF3-05
LF3-06
LF3-07
LF3-08
LF3-09
LF3-10
LF3-11
LF3-11A

EBR
EBR-1

ICPP
81-01
81-02
81-04
81-05
81-06
81-07
81-08
81-09
81-10
81-11
81-12
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81-14
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CPP-04
CPP-33-1
CPP-33-1L
CPP-33-2
CPP-33-2L
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CPP-33-3L
CPP-33-4-1
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CPP-33-5L
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CPP-A49
CPP-A50
CPP-A51
CPP-A52
CPP-A53-07
CPP-A53-11
CPP-A53-19
CPP-A53-20
CPP-A56
CPP-A59
CPP-B2
CPP-B7
PW-1
PW-2
PW-3
PW-4
PW-5
PW-6
SWPP-01
SWPP-01A
SWPP-02
SWPP-02A
SWPP-03
SWPP-03A
SWPP-04
SWPP-04A
SWPP-05
SWPP-05A
SWPP-06
SWPP-06A
SWPP-07
SWPP-07A
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SWPP-08A
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SWPP-09A
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SWPP-10A
SWPP-11
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SWPP-12A
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SWPP-13A
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SWPP-15A
SWPP-16
SWPP-16A
SWPP-17
SWPP-17A
SWPP-18
SWPP-18A
SWPP-19
SWPP-19A
SWPP-20
SWPP-20A
SWPP-21
SWPP-21A

SWPP-22
SWPP-23
SWPP-24
SWPP-25
SWPP-26
SWPP-27
USGS-020
USGS-034
USGS-035
USGS-036
USGS-037
USGS-038
USGS-039
USGS-040
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USGS-042
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USGS-044
USGS-045
USGS-046
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USGS-057
USGS-059
USGS-067
USGS-077
USGS-081
USGS-082
USGS-085
USGS-111
USGS-112
USGS-113
USGS-114
USGS-115
USGS-116
USGS-121
USGS-122
USGS-123

INEL MIDDLE
COREHOLE 2A
DH-1B
DH-2A
INEL-1
SITE-06
SITE-14
SITE-17
USGS-003A
USGS-004
USGS-006
USGS-012
USGS-015
USGS-017
USGS-018
USGS-019
USGS-021
USGS-023
USGS-028
USGS-029
USGS-030A, 30B, 30C
USGS-031
USGS-032
USGS-033
USGS-098
USGS-099

WATER SUPPLY FOR INEL 1

INEL NORTH
USGS-027

INEL SOUTH
BADGING FACILITY WELL
COREHOLE 1
EOCR INJECTION WELL
EOCR PRODUCTION WELL
FIRE STATION WELL
HIGHWAY 3
NPR TEST
OMRE
RIFLE RANGE WELL
SITE-04
SITE-09
USGS-001
USGS-002
USGS-005
USGS-009
USGS-022
USGS-083
USGS-086
USGS-101
USGS-103
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USGS-105
USGS-106
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USGS-108
USGS-109
USGS-110

NRF
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NRF-2
NRF-3
NRF-4
NRF-S5G TEST WELL
USGS-097
USGS-102

PBF
PBF CHEM. WST INJ WELL
PBF CLEAN H2O INJ WELL
SPERT DISP 1
SPERT DISP 2
SPERT DISP 3
SPERT-1
SPERT-2

RWMC
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76-2
76-3
76-4
76-4A
76-5
76-6
77-1
77-2
78-1
78-2
78-3
78-4
78-5
78-6
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8801T
8802D
8901D
8902D
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ACID PIT-I08
ACID PIT-I09
ACID PIT-I10
ACID PIT-I11
ACID PIT-I12
ACID PIT-I13
ACID PIT-I14
ACID PIT-I15
ACID PIT-I16
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ACID PIT-P02
ACID PIT-P03
ACID PIT-P04
ACID PIT-P05
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D-15
M1SA
M3S
M4D
M6S
M7S
M10S
NA-89-1
NA-89-2
NA-89-3
PA-01
PA-02

RWMC PRODUCTION
T-12
T-23
TESTHOLE 0
TH-01
TH-02
TH-03
TH-04
TH-05
TW-1
USGS-087
USGS-088
USGS-089
USGS-090
USGS-091
USGS-092
USGS-093
USGS-093A
USGS-094
USGS-095
USGS-096
USGS-096A
USGS-096B
USGS-117
USGS-118
USGS-119
USGS-120
VZT-01
W-01
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WWW1

TAN
ANP-05
ANP-06
ANP-07
ANP-09
ANP-10
NO NAME 01
OWSLEY WELL 2
PSTF TEST
P&W-1
P&W-2
P&W-3
TAN-06
TAN-15
TAN-17
TCH-2
USGS-007
USGS-025
USGS-026

TAN (CTF)
FET-1
FET-2
FET-3
GIN-06
GIN-07
GIN-08
GIN-09
GIN-09AU
GIN-10
GIN-11
GIN-12
GIN-12AU
GIN-13
GIN-14
GIN-15
GIN-16
GIN-17
GIN-18
GIN-19
GIN-20
LOFT-A01
LOFT-A02
LOFT-A03
LOFT-A04
LOFT-A05
LOFT-A06
LOFT-A07
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LOFT-A09
LOFT-A10
LOFT-A11
LOFT-A12
LOFT-A13
LOFT-A14
LOFT-A15
LOFT-A16
LOFT-A17
LOFT-A18
LOFT-A19
LOFT-A20
TAN DRAINAGE DISP. 03

TAN (IET)
ANP-04

TAN (TSF)
ANP-01
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ANP-03
TAN DRAINAGE DISP. 01
TAN DRAINAGE DISP. 02
TAN DRAINAGE DISP. 04
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TAN-10A
TAN-11
TAN-12
TAN-13
TAN-13A
TAN-14
TAN-16
TAN-18
TAN-19
TAN-20
TAN-21
TAN-22
TAN-22A
TAN-23
TAN-23A
TCH-1
TSFAG-1
TSFAG-2
TSFAG-3
TSFAG-4
TSFAG-5
TSFAG-6
TSFAG-7
USGS-024

TAN (WRRTF)
ANP-08
GIN-01
GIN-02
GIN-03
GIN-04
GIN-05
LPTF DISPOSAL
TAN-24
TAN-24A

TRA
CWP-01
CWP-02
CWP-03
CWP-04
CWP-05
CWP-06
CWP-07
CWP-08
CWP-09
MTR TEST
PW-7
PW-8

PW-9
PW-10
PW-11
PW-12
PW-13
PW-14
PZ-1
SB-01
SB-02
SB-03
SB-04
SB-05
SB-06
SB-07
SB-08
SB-09
SITE-19
TRA DISPOSAL
TRA-01
TRA-02
TRA-03
TRA-04
TRA-05A
TRA-06
TRA-06-1
TRA-06A
TRA-07
TRA-08
TRA-A01
TRA-A02
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USGS-070
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USGS-072
USGS-073
USGS-074
USGS-075
USGS-076
USGS-078
USGS-079
USGS-080
USGS-084

Appendix A

Summary Tables

JUNE

ABANDONED/DE OYED WELLS

WELL NAME	COMPLETION ZONE	Aquifer	Surface Sediment	Vadose Zone	STATE REGS. EVALUATION	In Compliance	Not In compliance	Abandonment Not Documented
ANL								
ANL-M01				X		X		
ANL-M02				X		X		
ANL-M03				X		X		
ANL-M07				X		X		
ANL-M08				X		X		
ANL-M09				X		X		
ANL-M10				X		X		
ARA								
ACRE I WELL		NF						X
CFA								
LF2-12A				X		X		
LF3-11A		X				X		
ICPP								
CPP-03 (INJECTION)		X				X		
CPP-A01			X					X
CPP-A02			X					X
CPP-A03			X					X
CPP-A04			X					X
CPP-A05			X					X
CPP-A06			X					X
CPP-A07			X					X
CPP-A08			X					X
CPP-A09			X					X
CPP-A10			X					X
CPP-A11			X					X
CPP-A12			X					X
CPP-A13			X					X

NF=NOT FOUND
? =PROBABLE CATAGORY
* =WELL MAY NEVER HAVE EXISTED
NA=BORING WAS LESS THAN 18 FEET DEEP

ABANDONED/DE OYED WELLS

WELL NAME	COMPLETION ZONE	Aquifer	Surface Sediment	Vadose Zone	STATE REGS. EVALUATION	In Compliance	Not In compliance	Abandonment Not Documented
CPP-A14			X					X
CPP-A15			X					X
CPP-A16			X					X
CPP-A40			X					X
CPP-A41			X					X
CPP-A42			X					X
CPP-A43			X					X
CPP-A47			X					X
SWPP-02A			X				X	
SWPP-07			X				X	
SWPP-08A			X				X	
SWPP-09A			X				X	
SWPP-10A			X				X	
SWPP-11			X				X	
SWPP-12			X				X	
SWPP-16A			X				X	
SWPP-17A			X				X	
SWPP-20			X				X	
SWPP-21			X				X	
SWPP-27			X				X	
NRF								
NRF-S5G Test Well		X				?		
INEL (MIDDLE / NORTH / SOUTH)								
EOCR INJECTION WELL				X		X		
USGS-003A		X					X	
USGS-033		X					X	
PBF								
PBF CHEM. WST INJ WELL				X		?		

NF=NOT FOUND
? =PROBABLE CATAGORY
*** =WELL MAY NEVER HAVE EXISTED**
NA=BORING WAS LESS THAN 18 FEET DEEP

ABANDONED/DE)YED WELLS

WELL NAME	COMPLETION ZONE	Aquifer	Surface Sediment	Vadose Zone	STATE REGS. EVALUATION	In Compliance	Not In compliance	Abandonment Not Documented
PBF CLEAN H2O INJ WELL				X		?		
RWMC								
76-1				X		X		
76-2				X		X		
76-3				X		X		
76-4				X		X		
76-4A				X		X		
76-6				X		X		
78-2				X		X		
78-3				X		X		
78-5				X		X		
78-6 *				NF				NF
79-1				X		X		
79-3				X		X		
TESTHOLE 0			X			NA		
TH-01			X			NA		
TH-03			X			NA		
USGS-091				X		X		
USGS-093				X		X		
USGS-093A				X		X		
USGS-094				X		X		
USGS-095				X		X		
USGS-096				X		X		
USGS-096A				X		X		
USGS-096B				X		X		
VZT-01				X				X
TAN (TSF)								
TAN-13		NF				X		

NF=NOT FOUND
? =PROBABLE CATAGORY
*** =WELL MAY NEVER HAVE EXISTED**
NA=BORING WAS LESS THAN 18 FEET DEEP

ABANDONED/DE OYED WELLS

WELL NAME	COMPLETION ZONE	Aquifer	Surface Sediment	Vadose Zone	STATE REGS. EVALUATION	In Compliance	Not In compliance	Abandonment Not Documented
TAN-22		X				X		
TAN-23		X				X		
TSFAG-1			X					X
TSFAG-2			X			X		
TSFAG-3			X				X	
TSFAG-4			X					X
TSFAG-6			X					X
TAN(WRRTF)								
LPTF DISPOSAL		X				?		
TAN-24		X				X		
TRA								
TRA-05A				X		X		
TRA-06			X					X
TRA-A11			X					X
TRA-A17			X					X
TRA-A19			X				X	
TRA-A21			X				X	
TRA-A25			X				X	
TRA-A27			X				X	
TRA-A29			X				X	
TRA-A32			X				X	
TRA-A33			X				X	
TRA-A34			X				X	
TRA-A35			X				X	
TRA-A37			X				X	
TRA-A39			X				X	
TRA-A40			X				X	
TRA-A41			X				X	

NF=NOT FOUND
? =PROBABLE CATAGORY
* =WELL MAY NEVER HAVE EXISTED
NA=BORING WAS LESS THAN 18 FEET DEEP

ABANDONED/DESTROYED WELLS

WELL NAME	COMPLETION ZONE				STATE REGS. EVALUATION			
		Aquifer	Surface Sediment	Vadose Zone		In Compliance	Not In compliance	Abandonment Not Documented
TRA-A49			X				X	
TRA-A51			X				X	
TRA-A76			X				X	
TRA-A88			X				X	

NF=NOT FOUND
? =PROBABLE CATAGORY
* =WELL MAY NEVER HAVE EXISTED
NA=BORING WAS LESS THAN 18 FEET DEEP

AQUIFER AND PERC WATER WELLS

WELL NAME	WELL USE / TYPE	USGS Observation	Contractor Observation	DOE 5400.1 Monitoring	CERCLA Characterization	RCRA Monitoring	Injection	COMPLETION ZONE	Aquifer	Vadose Zone	Perched Water	WELL STATUS	Active	Proposed for Use	Inactive	Well Dry	STATE REGS. EVALUATION	In Compliance	In Compliance / Minor deficiencies	Request Variance	Remediation Recommended	Run Neutron Log	Consider Abandonment	RCRA EVALUATION	In Compliance	In Compliance / Minor Deficiencies	Request Variance	Remediation Recommended	Use Not Recommended	INEL BMP EVALUATION	Additional Upgrade Needed	Field Identification Needed
ANL																																
ANL-M04			X								X		X			X				X												
ANL-M05			X								X		X			X				X												
ANL-M06			X								X		X								X											
ANL-M11				P					X					X				X									X					
ARBOR TEST		X							X				X							X												
SITE-16		X							X				X						X			X										
USGS-100		X							X				X							X												
ARA																																
NTP-AREA 2		X							X				X							X												
CFA																																
CFA DISPOSAL WELL							X			X			X			X				X											X	
LF2-08					P				X					X						X						X						
LF2-09					P				X					X						X						X		?				
LF2-10					P				X					X							X								X		X	
LF2-11					P				X					X						X						X						
LF2-12					P				X					X						X							X					
LF3-08					P				X					X						X								X				
LF3-09					P				X					X						X						X						
LF3-10					P				X					X						X							X					
LF3-11					P				X					X						X							X					
ICPP																																
CPP-33-1				P							X			X		X			X						X							

NOTE: B=RCRA AS A BMP; P=PROPOSED FOR USE;
?=PROBABLE CATEGORY

AQUIFER AND PER( ) WATER WELLS

WELL NAME	WELL USE / TYPE	USGS Observation	Contractor Observation	DOE 5400.1 Monitoring	CERCLA Characterization	RCRA Monitoring	Injection	COMPLETION ZONE	Aquifer	Vadose Zone	Perched Water	WELL STATUS	Active	Proposed for Use	Inactive	Well Dry	STATE REGS. EVALUATION	In Compliance	In Compliance / Minor deficiencies	Request Variance	Remediation Recommended	Run Neutron Log	Consider Abandonment	RCRA EVALUATION	In Compliance	In Compliance / Minor Deficiencies	Request Variance	Remediation Recommended	Use Not Recommended	INEL BMP EVALUATION	Additional Upgrade Needed	Field Identification Needed
CPP-33-2				P							X			X					X							X						
CPP-33-3				P							X			X					X							X						
CPP-33-4-1				P							X			X					X							X						
CPP-55-06				P							X			X					X							X						
PW-1		X		X	X						X		X						X								X					
PW-2		X		X	X						X		X						X								X					
PW-3		X									X		X						X													
PW-4		X		X	X						X		X						X								X					
PW-5		X		X	X						X		X					X									X					
PW-6		X									X		X						X													
USGS-020		X							X				X							X												
USGS-034		X							X				X							X												
USGS-035		X							X				X							X												
USGS-036		X				X			X				X							X									X			
USGS-037		X							X				X							X												
USGS-038		X							X				X							X												
USGS-039		X			X	X			X				X							X									X			
USGS-040		X							X				X								X											
USGS-041		X							X				X							X												
USGS-042		X							X				X							X												
USGS-043		X							X				X								X											
USGS-044		X							X				X							X		X										
USGS-045		X							X				X								X	X										

NOTE: B=RCRA AS A BMP; P=PROPOSED FOR USE; ?=PROBABLE CATEGORY

AQUIFER AND PERC) WATER WELLS

WELL NAME	WELL USE / TYPE	USGS Observation	Contractor Observation	DOE 5400.1 Monitoring	CERCLA Characterization	RCRA Monitoring	Injection	COMPLETION ZONE	Aquifer	Vadose Zone	Perched Water	WELL STATUS	Active	Proposed for Use	Inactive	Well Dry	STATE REGS. EVALUATION	In Compliance	In Compliance / Minor deficiencies	Request Variance	Remediation Recommended	Run Neutron Log	Consider Abandonment	RCRA EVALUATION	In Compliance	In Compliance / Minor Deficiencies	Request Variance	Remediation Recommended	Use Not Recommended	INEL BMP EVALUATION	Additional Upgrade Needed	Field Identification Needed
USGS-046		X							X				X							X	X											
USGS-047		X							X				X								X											
USGS-048		X							X				X								X	X										
USGS-049		X							X				X								X											
USGS-050		X									X		X								X											
USGS-051		X							X				X								?	X										
USGS-052		X							X				X								X											
USGS-057		X							X				X							X		X										
USGS-059		X							X				X								X											
USGS-067		X							X				X							X		X										
USGS-077		X							X				X							X												
USGS-081		X								X					X	X							X								X	
USGS-082		X			X	X			X				X							X									X			
USGS-085		X							X				X							X												
USGS-111		X							X				X							X												
USGS-112		X			X	X			X				X						X										X			
USGS-113		X							X				X							X												
USGS-114		X			X	X			X				X						X										X			
USGS-115		X							X				X						X													
USGS-116		X			X	X			X				X						X										X			
USGS-121		X			X	X			X				X					X									X					
USGS-122		X				B			X				X					X								X						
USGS-123		X				B			X				X					X								X						

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AQUIFER AND PER( ) WATER WELLS

WELL NAME	WELL USE / TYPE	USGS Observation	Contractor Observation	DOE 5400.1 Monitoring	CERCLA Characterization	RCRA Monitoring	Injection	COMPLETION ZONE	Aquifer	Vadose Zone	Perched Water	WELL STATUS	Active	Proposed for Use	Inactive	Well Dry	STATE REGS. EVALUATION	In Compliance	In Compliance / Minor deficiencies	Request Variance	Remediation Recommended	Run Neutron Log	Consider Abandonment	RCRA EVALUATION	In Compliance	In Compliance / Minor Deficiencies	Request Variance	Remediation Recommended	Use Not Recommended	INEL BMP EVALUATION	Additional Upgrade Needed	Field Identification Needed
INEL MIDDLE																																
COREHOLE 2A		X							X				X							X												
DH-1B		X							X				X								X											
DH-2A		X							X				X								X											
INEL-1		X							X				X							X											X	
SITE-06		X							X				X							X												
SITE-14		X							X				X							X												
SITE-17		X							X				X							X												
USGS-004		X							X				X							X												
USGS-006		X							X				X							X												
USGS-012		X		X	X	X			X				X							X									X			
USGS-015		X		X	X	X			X				X							X									X			
USGS-017		X		X	X	X			X				X							X									X			
USGS-018		X							X				X							X												
USGS-019		X							X				X							X												
USGS-021		X							X				X							X												
USGS-023		X							X				X							X												
USGS-028		X							X				X							X												
USGS-029		X							X				X							X												
USGS-030A, 30B, 30C		X							X				X							X												
USGS-031		X							X				X							X												
USGS-032		X							X				X							X												
USGS-098		X		X	X	X			X				X							X								X				

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AQUIFER AND PERC / WATER WELLS

WELL NAME	WELL USE / TYPE	USGS Observation	Contractor Observation	DOE 5400.1 Monitoring	CERCLA Characterization	RCRA Monitoring	Injection	COMPLETION ZONE	Aquifer	Vadose Zone	Perched Water	WELL STATUS	Active	Proposed for Use	Inactive	Well Dry	STATE REGS. EVALUATION	In Compliance	In Compliance / Minor deficiencies	Request Variance	Remediation Recommended	Run Neutron Log	Consider Abandonment	RCRA EVALUATION	In Compliance	In Compliance / Minor Deficiencies	Request Variance	Remediation Recommended	Use Not Recommended	INEL BMP EVALUATION	Additional Upgrade Needed	Field Identification Needed
USGS-099		X		X	X	X			X				X							X								X				
WATER SUPPLY FOR INEL 1		X		X	X	X			X				X							X									X			
INEL NORTH																																
USGS-027		X							X				X							X												
INEL SOUTH																																
COREHOLE 1		X							X				X							X												
NPR Test		X							X				X							X											X	
SITE-09		X							X				X							X												
USGS-001		X		P	P				X				X							X							X					
USGS-002		X							X				X							X												
USGS-005		X		P	P				X				X							X							X					
USGS-009		X		P	P				X				X								X						X					
USGS-022		X							X				X								X											
USGS-083		X							X				X							X												
USGS-086		X		P	P				X				X							X							X					
USGS-101		X		P	P				X				X								X								X			
USGS-103		X		P	P				X				X						X										X			
USGS-104		X							X				X						X													
USGS-105		X		P	P				X				X						X										X			
USGS-106		X							X				X						X													
USGS-107		X							X				X						X													
USGS-108		X		P	P				X				X						X										X			
USGS-109		X		P	P				X				X								X								X			

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AQUIFER AND PERC /WATER WELLS

WELL NAME	WELL USE / TYPE	USGS Observation	Contractor Observation	DOE 5400.1 Monitoring	CERCLA Characterization	RCRA Monitoring	Injection	COMPLETION ZONE	Aquifer	Vadose Zone	Perched Water	WELL STATUS	Active	Proposed for Use	Inactive	Well Dry	STATE REGS. EVALUATION	In Compliance	In Compliance / Minor deficiencies	Request Variance	Remediation Recommended	Run Neutron Log	Consider Abandonment	RCRA EVALUATION	In Compliance	In Compliance / Minor Deficiencies	Request Variance	Remediation Recommended	Use Not Recommended	INEL BMP EVALUATION	Additional Upgrade Needed	Field Identification Needed
USGS-110		X		P	P				X				X						X										X			
NRF																																
USGS-097		X		X	X	X			X				X							X									X			
USGS-102		X		X	X	X			X				X						X								X					
PBF																																
SPERT DISP 1							X			X			X			X				X												
SPERT DISP 2							X			X			X			X				X												
SPERT DISP 3							X			X			X			X				X												
RWMC																																
76-5											X				X								X								X	
77-2					X						X		X								X										X	X
78-1					X						X		X							X												
79-2											X				X								X									
8801T											X				X				X													
8802D					X						X		X								X											
D-06A											X				X					X												
D-10			X								X		X								X											
M1SA		X			P				X				X						X										X			
M3S		X			P				X				X						X										X			
M4D		X			P				X				X						X								X	X				
M6S		X			P				X				X						X								X					
M7S		X			P				X				X						X								X					
M10S		X			P				X				X						X										X			

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AQUIFER AND PERC) WATER WELLS

WELL NAME	WELL USE / TYPE	USGS Observation	Contractor Observation	DOE 5400.1 Monitoring	CERCLA Characterization	RCRA Monitoring	Injection	COMPLETION ZONE	Aquifer	Vadose Zone	Perched Water	WELL STATUS	Active	Proposed for Use	Inactive	Well Dry	STATE REGS. EVALUATION	In Compliance	In Compliance / Minor deficiencies	Request Variance	Remediation Recommended	Run Neutron Log	Consider Abandonment	RCRA EVALUATION	In Compliance	In Compliance / Minor Deficiencies	Request Variance	Remediation Recommended	Use Not Recommended	INEL BMP EVALUATION	Additional Upgrade Needed	Field Identification Needed
USGS-087		X		P					X				X						X								X	?				
USGS-088		X		P					X				X						X										X			
USGS-089		X			P				X				X						X								X					
USGS-090		X			P				X				X						X										X			
USGS-092		X			P						X		X								X							X				
USGS-117		X			P				X				X								X	X							X			
USGS-118		X			X				X				X						X													
USGS-119		X							X				X								?	X							X			
USGS-120		X			P				X				X							X		X							X			
TAN																																
ANP-05		X							X				X							X												
ANP-06		X		P	X				X				X							X									X			
ANP-07		X							X				X							X												
ANP-09		X			X				X				X							X									X			
ANP-10		X							X				X							X											X	
NO NAME 01		X							X				X							X												
OWSLEY WELL 2		X							X				X							X												
PSTF TEST		X							X				X							X											X	
P&W-1		X							X				X							X											X	
P&W-2		X							X				X							X											X	
P&W-3		X							X				X							X											X	
TAN-06					X				X				X							X						X						
TAN-15				P	X				X				X							X					X							

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AQUIFER AND PERC WATER WELLS

WELL NAME	WELL USE / TYPE	USGS Observation	Contractor Observation	DOE 5400.1 Monitoring	CERCLA Characterization	RCRA Monitoring	Injection	COMPLETION ZONE	Aquifer	Vadose Zone	Perched Water	WELL STATUS	Active	Proposed for Use	Inactive	Well Dry	STATE REGS. EVALUATION	In Compliance	In Compliance / Minor deficiencies	Request Variance	Remediation Recommended	Run Neutron Log	Consider Abandonment	RCRA EVALUATION	In Compliance	In Compliance / Minor Deficiencies	Request Variance	Remediation Recommended	Use Not Recommended	INEL BMP EVALUATION	Additional Upgrade Needed	Field Identification Needed
TAN-17					X				X				X						X						?							
TCH-2					X				X				X						X						X							
USGS-007		X							X				X							X												
USGS-025		X							X				X							X												
USGS-026		X		P	X				X				X							X							X					
TAN (CTF)																																
FET-3		X							X				X								X		X									
TAN DRAINAGE DISP. 03		X			X		X		X				X							X							?		X			
TAN (IET)																																
ANP-04 (IET #1 Disp)		X			X				X				X							X									X			
TAN (TSF)																																
ANP-03 (TSF-05)		X			X				X				X							X												
TAN DRAINAGE DISP. 01		X			X		X		X				X							X							?		X		X	
TAN DRAINAGE DISP. 02		X			X		X		X				X							X			?				?		X		X	
TAN DRAINAGE DISP. 04							X			X			X			X							X									
TAN-03					X				X				X						X								X					
TAN-04					X				X				X						X							X						
TAN-05					X				X				X						X								X					
TAN-07					X				X				X							X					X							
TAN-08				P	X				X				X						X							X						
TAN-09					X				X				X						X							X						
TAN-10					X				X				X						X						X							
TAN-10A					X				X				X						X								X					

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AQUIFER AND PERC) WATER WELLS

WELL NAME	WELL USE / TYPE	USGS Observation	Contractor Observation	DOE 5400.1 Monitoring	CERCLA Characterization	RCRA Monitoring	Injection	COMPLETION ZONE	Aquifer	Vadose Zone	Perched Water	WELL STATUS	Active	Proposed for Use	Inactive	Well Dry	STATE REGS. EVALUATION	In Compliance	In Compliance / Minor deficiencies	Request Variance	Remediation Recommended	Run Neutron Log	Consider Abandonment	RCRA EVALUATION	In Compliance	In Compliance / Minor Deficiencies	Request Variance	Remediation Recommended	Use Not Recommended	INEL BMP EVALUATION	Additional Upgrade Needed	Field Identification Needed
TAN-11					X				X				X						X								X					
TAN-12					X				X				X							X					X							
TAN-13A				P	X				X				X							X							X					
TAN-14					X				X				X							X					X							
TAN-16					X				X				X							X					X							
TAN-18					X				X				X						X							X						
TAN-19					X				X				X						X									X				
TAN-20					X				X				X						X							X						
TAN-21					X				X				X						X							X						
TAN-22A					X				X				X						X							X						
TAN-23A					X				X				X						X									X				
TCH-1					X				X				X							X												
USGS-024		X			X				X				X								X						?		X			
TAN (WRRTF)																																
GIN-01		X							X				X							X												
GIN-02		X			X				X				X								X								X			
GIN-03		X		P	X				X				X								X								X			
GIN-04		X			X				X				X								X								X			
GIN-05		X							X				X							X												
TAN-24A					X				X				X						X							X						
TRA																																
MTR Test		X							X				X								X											
PW-7		X									X		X					?			?											

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WELL NAME	WELL USE / TYPE	USGS Observation	Contractor Observation	DOE 5400.1 Monitoring	CERCLA Characterization	RCRA Monitoring	Injection	COMPLETION ZONE	Aquifer	Vadose Zone	Perched Water	WELL STATUS	Active	Proposed for Use	Inactive	Well Dry	STATE REGS. EVALUATION	In Compliance	In Compliance / Minor deficiencies	Request Variance	Remediation Recommended	Run Neutron Log	Consider Abandonment	RCRA EVALUATION	In Compliance	In Compliance / Minor Deficiencies	Request Variance	Remediation Recommended	Use Not Recommended	INEL BMP EVALUATION	Additional Upgrade Needed	Field Identification Needed
PW-8		X			P						X		X						X								X					
PW-9		X			P						X		X					X								X						
PW-10			X								X				X					X												
PW-11			X		P						X		X							X					X							
PW-12			X								X				X					X												
PW-13			X								X				X					X												
PW-14			X			B					X				X					X	X					X						
PZ-1 (TRA-05)			X								X				X				X													
SITE-19		X							X				X							X												
TRA-06A					P				X					X						X	X						X					
TRA-07						B			X						X					X							X	X				
TRA-08				P	P				X					X						X						X						
TRA DISPOSAL		X							X				X								X											
USGS-053		X									X		X								X											
USGS-054		X									X		X								X											
USGS-055		X									X		X								X											
USGS-056		X									X		X								X											
USGS-058		X							X				X								X	X										
USGS-060		X									X		X							X												
USGS-061		X									X		X							X												
USGS-062		X									X		X							X												
USGS-063		X									X		X							X												
USGS-064		X									X				X	X					X		X									

NOTE: B=RCRA AS A BMP; P=PROPOSED FOR USE;
?=PROBABLE CATEGORY

AQUIFER AND PER( ) WATER WELLS

WELL NAME	WELL USE / TYPE	USGS Observation	Contractor Observation	DOE 5400.1 Monitoring	CERCLA Characterization	RCRA Monitoring	Injection	COMPLETION ZONE	Aquifer	Vadose Zone	Perched Water	WELL STATUS	Active	Proposed for Use	Inactive	Well Dry	STATE REGS. EVALUATION	In Compliance	In Compliance / Minor deficiencies	Request Variance	Remediation Recommended	Run Neutron Log	Consider Abandonment	RCRA EVALUATION	In Compliance	In Compliance / Minor Deficiencies	Request Variance	Remediation Recommended	Use Not Recommended	INEL BMP EVALUATION	Additional Upgrade Needed	Field Identification Needed
USGS-065		X		P	P				X				X								X						X	X				
USGS-066		X									X		X							X	X											
USGS-068		X									X		X								X											
USGS-069		X									X		X							X												
USGS-070		X									X		X							X												
USGS-071		X									X		X							X												
USGS-072		X									X		X							X												
USGS-073		X									X		X							X	X										X	
USGS-074		X									X		X							X												
USGS-075		X									X				X	X				X	X											
USGS-076		X		P	P				X				X							X									X			
USGS-078		X									X		X								X											
USGS-079		X		P					X				X							X									X			
USGS-080		X									X				X	X				X	X											
USGS-084		X							X				X							X												

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MISCELLANEOUS W S AND BORINGS

WELL NAME	WELL USE	USGS Observation	Contractor Observation	DOE 5400.1 Monitoring	CERCLA Characterization	RCRA Monitoring	CONSTRUCTION CATEGORY	Surface Percolation Well	Borehole	Gas Port / Injection	Neutron Access	Radiation Monitoring	Soil Moisture / Vapor Port	COMPLETION ZONE	Aquifer	Vadose Zone	Surface Sediment	<18 ft. Deep	WELL STATUS	Active	Proposed for Use	Inactive / (No documented Use)	NOT EVAL. STATE REGS.	STATE REGS. EVALUATION	In Compliance	In Compliance / Minor Deficiencies	Request Variance	Remediation Recommended	Consider Abandonment	RCRA EVALUATION	In Compliance / Minor Deficiencies	INEL BMP EVALUATION	Additional Upgrade Needed	Field Identification Needed
CFA																																		
LF2-01													X				X					X	X											
LF2-02													X				X					X	X											
LF2-03											X						X					X	X											
LF2-04											X						X					X	X											
LF2-05													X				X					X	X											
LF2-06													X				X					X	X											
LF2-07											X						X					X	X											
LF3-01													X				X	X				X	X											
LF3-02													X				X	X				X	X											
LF3-03											X						X					X	X											
LF3-04													X				X	X				X	X											
LF3-05											X						X					X	X											
LF3-06													X				X					X	X											
LF3-07													X				X					X	X											
ICPP																																		
81-01			X									X					X			X			X											
81-02			X									X					X			X			X											
81-04			X									X					X			X			X											
81-05			X									X					X	X		X			X											
81-06			X									X					X			X			X											
81-07			X									X					X			X			X											
81-08			X									X					X			X			X											
81-09			X									X					X			X			X											
81-10			X									X					X			X			X											
81-11			X									X					X			X			X											
81-12			X									X					X	X		X			X											

Note: B=RCRA AS A BMP; P=PROPOSED FOR USE
NA=NOT APPLICABLE; ?= PROBABLE CATEGORY

WELL NAME	WELL USE	USGS Observation	Contractor Observation	DOE 5400.1 Monitoring	CERCLA Characterization	RCRA Monitoring	CONSTRUCTION CATEGORY	Surface Percolation Well	Borehole	Gas Port / Injection	Neutron Access	Radiation Monitoring	Soil Moisture / Vapor Port	COMPLETION ZONE	Aquifer	Vadose Zone	Surface Sediment	<18 ft. Deep	WELL STATUS	Active	Proposed for Use	Inactive / (No documented Use)	NOT EVAL. STATE REGS.	STATE REGS. EVALUATION	In Compliance	In Compliance / Minor Deficiencies	Request Variance	Remediation Recommended	Consider Abandonment	RCRA EVALUATION	In Compliance / Minor Deficiencies	INEL BMP EVALUATION	Additional Upgrade Needed	Field Identification Needed
81-13			X									X					X			X			X											
81-14			X									X					X			X			X											
81-15			X									X					X	X		X			X											
81-16			X									X					X			X			X											
81-17			X									X					X			X			X											
81-18			X									X					X			X			X											
81-19			X									X					X			X			X											
81-20			X									X					X			X			X											
81-21			X									X					X	X		X			X											
81-22			X									X					X			X			X											
81-23			X									X					X			X			X											
81-24			X									X					X	X		X			X											
CPP-33-1L				P									X				X				X		X								NA		X	X
CPP-33-2L				P									X				X				X		X								NA			
CPP-33-3L				P									X				X				X		X								NA		X	X
CPP-33-4-2				P				X									X				X					X					X			
CPP-33-5L				P									X			X					X		X								NA			
CPP-A44			P					X									X			X							X							
CPP-A45			P					X									X			X							X							
CPP-A46			P					X									X			X							X							
CPP-A48			P					X									X			X							X							
CPP-A49			P					X									X			X							X							
CPP-A50			P					X									X			X							X							
CPP-A51			P					X									X			X							X						X	
CPP-A52			P					X									X			X							X							
CPP-A53-07			X									X					X			X			X											
CPP-A53-11			X									X					X			X			X											
CPP-A53-19			X									X					X			X			X											

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WELL NAME	WELL USE	USGS Observation	Contractor Observation	DOE 5400.1 Monitoring	CERCLA Characterization	RCRA Monitoring	CONSTRUCTION CATEGORY	Surface Percolation Well	Borehole	Gas Port / Injection	Neutron Access	Radiation Monitoring	Soil Moisture / Vapor Port	COMPLETION ZONE	Aquifer	Vadose Zone	Surface Sediment	<18 ft. Deep	WELL STATUS	Active	Proposed for Use	Inactive / (No documented Use)	NOT EVAL. STATE REGS.	STATE REGS. EVALUATION	In Compliance	In Compliance / Minor Deficiencies	Request Variance	Remediation Recommended	Consider Abandonment	RCRA EVALUATION	In Compliance / Minor Deficiencies	INEL BMP EVALUATION	Additional Upgrade Needed	Field Identification Needed
CPP-A53-20			X									X					X			X			X											
CPP-A56			X					X									X			X							X							
CPP-A59			X					X									X			X							X						X	
CPP-B2			X									X					X	X		X			X											
CPP-B7			X									X					X			X			X											
SWPP-01		X						X									X			X							X							
SWPP-01A		X						X									X			X							X							
SWPP-02		X						X									X			X							X							
SWPP-03		X						X									X			X							X							
SWPP-03A		X						X									X			X							X							
SWPP-04		X						X									X			X							X							
SWPP-04A		X						X									X			X							X							
SWPP-05		X						X									X			X							X							
SWPP-05A		X						X									X			X							X							
SWPP-06		X						X									X			X							X							
SWPP-06A		X						X									X			X							X							
SWPP-07A		X						X									X			X							X							
SWPP-08		X						X									X			X							X							
WPP-09		X						X									X			X							X							
WPP-10		X						X									X			X							X							
WPP-11A		X						X									X			X							X							
SWPP-12A		X						X									X			X							X							
SWPP-13		X						X									X			X							X						X	
SWPP-13A		X						X									X			X							X							
SWPP-14		X						X									X			X							X						X	
SWPP-14A		X						X									X			X							X							
SWPP-15		X						X									X			X							X							
SWPP-15A		X						X									X			X							X							

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MISCELLANEOUS \ LS AND BORINGS

WELL NAME	WELL USE	USGS Observation	Contractor Observation	DOE 5400.1 Monitoring	CERCLA Characterization	RCRA Monitoring	CONSTRUCTION CATEGORY	Surface Percolation Well	Borehole	Gas Port / Injection	Neutron Access	Radiation Monitoring	Soil Moisture / Vapor Port	COMPLETION ZONE	Aquifer	Vadose Zone	Surface Sediment	<18 ft. Deep	WELL STATUS	Active	Proposed for Use	Inactive / (No documented Use)	NOT EVAL. STATE REGS.	STATE REGS. EVALUATION	In Compliance	In Compliance / Minor Deficiencies	Request Variance	Remediation Recommended	Consider Abandonment	RCRA EVALUATION	In Compliance / Minor Deficiencies	INEL BMP EVALUATION	Additional Upgrade Needed	Field Identification Needed
SWPP-16		X						X									X			X							X							
SWPP-17		X						X									X			X							X							
SWPP-18		X						X									X			X							X							
SWPP-18A		X						X									X			X							X							
SWPP-19		X						X									X			X							X							
SWPP-19A		X						X									X			X							X							
SWPP-20A		X						X									X			X							X							
SWPP-21A		X						X									X			X							X							
SWPP-22		X						X									X			X							X						X	
SWPP-23		X						X									X			X							X						X	
SWPP-24		X						X									X			X							X							
SWPP-25		X						X									X	X		X			X											
SWPP-26		X						X									X	X		X			X											
RWMC																																		
77-1					X					X						X				X			X								NA		X	
78-4					X					X						X				X			X								NA		X	
8801D					X					X						X				X			X								NA		X	
8901D										X						X						X						X	X					
8902D					X					X						X				X			X								NA		X	
ACID PIT-I07									X								X	X				X	X										X	
ACID PIT-I08									X								X	X				X	X										X	
ACID PIT-I09									X								X	X				X	X										X	
ACID PIT-I10									X								X					X	X										X	
ACID PIT-I11									X								X	X				X	X										X	
ACID PIT-I12									X								X	X				X	X										X	
ACID PIT-I13									X								X	X				X	X										X	
ACID PIT-I14									X								X	X				X	X										X	

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MISCELLANEOUS LS AND BORINGS

WELL NAME	WELL USE	USGS Observation	Contractor Observation	DOE 5400.1 Monitoring	CERCLA Characterization	RCRA Monitoring	CONSTRUCTION CATEGORY	Surface Percolation Well	Borehole	Gas Port / Injection	Neutron Access	Radiation Monitoring	Soil Moisture / Vapor Port	COMPLETION ZONE	Aquifer	Vadose Zone	Surface Sediment	<18 ft. Deep	WELL STATUS	Active	Proposed for Use	Inactive / (No documented Use)	NOT EVAL. STATE REGS.	STATE REGS. EVALUATION	In Compliance	In Compliance / Minor Deficiencies	Request Variance	Remediation Recommended	Consider Abandonment	RCRA EVALUATION	In Compliance / Minor Deficiencies	INEL BMP EVALUATION	Additional Upgrade Needed	Field Identification Needed
ACID PIT-I15									X								X					X	X										X	
ACID PIT-I16									X								X	X				X	X										X	
ACID PIT-P01									X								X					X	X										X	
ACID PIT-P02									X								X					X	X										X	
ACID PIT-P03									X								X	X				X	X										X	
ACID PIT-P04									X								X					X	X										X	
ACID PIT-P05									X								X					X	X										X	
ACID PIT-P06									X								X					X	X										X	
C-01													X				X					X	X											
C-02													X				X	X				X	X											
D-02					X					X						X				X			X								NA		X	
D-06													X			X						X	X											
D-15													X			X						X	X											
NA-89-1		X									X					X				X			X											
NA-89-2		X									X					X				X			X											
NA-89-3		X									X					X				X			X											
PA-01													X				X	X				X	X											
PA-02													X				X	X				X	X											
T-12													X				X	X				X	X										X	
T-23													X				X					X	X											
TH-02													X				X	X				X	X											
TH-04													X				X	X				X	X											
TH-05													X				X	X				X	X											
TW-1													X			X						X	X											
W-01													X				X	X				X	X											
W-02													X				X	X				X	X											
W-03													X				X	X				X	X										X	
W-04													X				X					X	X											

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WELL NAME	WELL USE	USGS Observation	Contractor Observation	DOE 5400.1 Monitoring	CERCLA Characterization	RCRA Monitoring	CONSTRUCTION CATEGORY	Surface Percolation Well	Borehole	Gas Port / Injection	Neutron Access	Radiation Monitoring	Soil Moisture / Vapor Port	COMPLETION ZONE	Aquifer	Vadose Zone	Surface Sediment	<18 ft. Deep	WELL STATUS	Active	Proposed for Use	Inactive / (No documented Use)	NOT EVAL. STATE REGS.	STATE REGS. EVALUATION	In Compliance	In Compliance / Minor Deficiencies	Request Variance	Remediation Recommended	Consider Abandonment	RCRA EVALUATION	In Compliance / Minor Deficiencies	INEL BMP EVALUATION	Additional Upgrade Needed	Field Identification Needed
W-05													X				X	X				X	X										X	
W-06													X				X	X				X	X											
W-08													X				X					X	X											
W-09													X				X	X				X	X											
W-10													X				X	X				X	X										X	
W-11													X				X	X				X	X											
W-12													X				X	X				X	X											
W-13													X				X					X	X											
W-16													X				X	X				X	X											
W-17													X				X					X	X											
W-18													X				X	X				X	X										X	
W-19													X				X	X				X	X											
W-20													X				X	X				X	X											
W-22													X				X	X				X	X											
W-23													X				X					X	X											
W-24													X				X	X				X	X										X	
W-25													X				X	X				X	X											
WWW1					X					X						X				X			X								NA			
TAN																																		
GIN-11										X						X						X	X											
GIN-12										X						X						X	X											
GIN-12AU										X						X						X	X											
TAN (CTF)																																		
GIN-06										X						X						X	X											
GIN-07										X						X						X	X											
GIN-08										X						X						X	X											
GIN-09										X						X						X	X											

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WELL NAME	WELL USE	USGS Observation	Contractor Observation	DOE 5400.1 Monitoring	CERCLA Characterization	RCRA Monitoring	CONSTRUCTION CATEGORY	Surface Percolation Well	Borehole	Gas Port / Injection	Neutron Access	Radiation Monitoring	Soil Moisture / Vapor Port	COMPLETION ZONE	Aquifer	Vadose Zone	Surface Sediment	<18 ft. Deep	WELL STATUS	Active	Proposed for Use	Inactive / (No documented Use)	NOT EVAL. STATE REGS.	STATE REGS. EVALUATION	In Compliance	In Compliance / Minor Deficiencies	Request Variance	Remediation Recommended	Consider Abandonment	RCRA EVALUATION	In Compliance / Minor Deficiencies	INEL BMP EVALUATION	Additional Upgrade Needed	Field Identification Needed
GIN-09AU										X						X						X	X											
GIN-10										X						X						X	X											
GIN-13										X						X						X	X											
GIN-14										X						X						X	X											
GIN-15										X						X						X	X											
GIN-16										X						X						X	X											
GIN-17										X						X						X	X											
GIN-18										X						X						X	X											
GIN-19										X						X						X	X											
GIN-20										X						X						X	X											
LOFT-A01		X						X									X	X		X			X											
LOFT-A02		X						X									X			X							X							
LOFT-A03		X						X									X			X							X							
LOFT-A04		X						X									X			X							X							
LOFT-A05		X						X									X			X							X							
LOFT-A06		X						X									X			X							X							
LOFT-A07		X						X									X			X							X							
LOFT-A08		X						X									X			X							X							
LOFT-A09		X						X									X			X							X							
LOFT-A10		X						X									X			X							X							
LOFT-A11		X						X									X			X							X							
LOFT-A12		X						X									X			X							X							
LOFT-A13		X						X									X			X							X							
LOFT-A14		X						X									X			X							X							
LOFT-A15		X						X									X			X							X							
LOFT-A16		X						X									X			X							X							
LOFT-A17		X						X									X			X							X							
LOFT-A18		X						X									X			X							X							

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WELL NAME	WELL USE	USGS Observation	Contractor Observation	DOE 5400.1 Monitoring	CERCLA Characterization	RCRA Monitoring	CONSTRUCTION CATEGORY	Surface Percolation Well	Borehole	Gas Port / Injection	Neutron Access	Radiation Monitoring	Soil Moisture / Vapor Port	COMPLETION ZONE	Aquifer	Vadose Zone	Surface Sediment	<18 ft. Deep	WELL STATUS	Active	Proposed for Use	Inactive / (No documented Use)	NOT EVAL. STATE REGS.	STATE REGS. EVALUATION	In Compliance	In Compliance / Minor Deficiencies	Request Variance	Remediation Recommended	Consider Abandonment	RCRA EVALUATION	In Compliance / Minor Deficiencies	INEL BMP EVALUATION	Additional Upgrade Needed	Field Identification Needed
LOFT-A19		X						X									X			X							X							
LOFT-A20		X						X									X			X							X							
TAN (TSF)																																		
TSFAG-5					X			X									X			X					X						X			
TSFAG-7					X			X									X			X					X						X			
TRA																																		
CWP-01		X						X									X			X							X							
CWP-02		X						X									X			X							X							
CWP-03		X						X									X			X							X							
CWP-04		X						X									X			X							X							
CWP-05		X						X									X			X							X							
CWP-06		X						X									X			X							X							
CWP-07		X						X									X			X							X							
CWP-08		X						X									X			X							X							
CWP-09		X						X									X			X							X							
SB-01						B		X									X					X				X					X			
SB-02						B		X									X					X				X					X			
B-03						B		X									X					X				X					X			
B-04						B		X									X					X				X					X			
B-05						B		X									X					X				X					X			
SB-06						B		X									X					X				X					X			
SB-07						B		X									X					X				X					X			
SB-08						B		X									X					X				X					X			
SB-09						B		X									X					X				X					X			
TRA-06-1								X									X					X				X								
TRA-A01		X						X									X			X							X						X	
TRA-A02		X						X									X			X							X						X	

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WELL NAME	WELL USE	USGS Observation	Contractor Observation	DOE 5400.1 Monitoring	CERCLA Characterization	RCRA Monitoring	CONSTRUCTION CATEGORY	Surface Percolation Well	Borehole	Gas Port / Injection	Neutron Access	Radiation Monitoring	Soil Moisture / Vapor Port	COMPLETION ZONE	Aquifer	Vadose Zone	Surface Sediment	<18 ft. Deep	WELL STATUS	Active	Proposed for Use	Inactive / (No documented Use)	NOT EVAL. STATE REGS.	STATE REGS. EVALUATION	In Compliance	In Compliance / Minor Deficiencies	Request Variance	Remediation Recommended	Consider Abandonment	RCRA EVALUATION	In Compliance / Minor Deficiencies	INEL BMP EVALUATION	Additional Upgrade Needed	Field Identification Needed
TRA-A03		X						X									X			X							X						X	
TRA-A04		X						X									X			X							X						X	
TRA-A05		X						X									X			X							X						X	
TRA-A06		X						X									X			X							X						X	
TRA-A07		X						X									X			X							X						X	
TRA-A08		X						X									X			X							X						X	
TRA-A09		X						X									X			X							X						X	
TRA-A10		X						X									X			X							X						X	X
TRA-A12		X						X									X			X							X						X	
TRA-A13		X						X									X			X							X						X	
TRA-A14		X						X									X			X							X						X	
TRA-A15		X						X									X			X							X							
TRA-A16		X						X									X			X							X							
TRA-A18		X						X									X			X							X							
TRA-A20		X						X									X			X							X							
TRA-A22		X						X									X			X							X						X	
TRA-A23		X						X									X			X							X						X	
TRA-A24		X						X									X			X							X						X	
TRA-A26		X						X									X			X							X							
TRA-A28		X						X									X			X							X							
TRA-A30		X						X									X			X							X						X	
TRA-A31		X						X									X			X							X							
TRA-A36		X						X									X			X							X							
TRA-A38		X						X									X			X							X						X	
TRA-A42		X						X									X			X								X					X	X
TRA-A43		X						X									X			X							X							
TRA-A44		X						X									X			X							X							
TRA-A45		X						X									X			X							X							

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WELL NAME	WELL USE	USGS Observation	Contractor Observation	DOE 5400.1 Monitoring	CERCLA Characterization	RCRA Monitoring	CONSTRUCTION CATEGORY	Surface Percolation Well	Borehole	Gas Port / Injection	Neutron Access	Radiation Monitoring	Soil Moisture / Vapor Port	COMPLETION ZONE	Aquifer	Vadose Zone	Surface Sediment	<18 ft. Deep	WELL STATUS	Active	Proposed for Use	Inactive / (No documented Use)	NOT EVAL. STATE REGS.	STATE REGS. EVALUATION	In Compliance	In Compliance / Minor Deficiencies	Request Variance	Remediation Recommended	Consider Abandonment	RCRA EVALUATION	In Compliance / Minor Deficiencies	INEL BMP EVALUATION	Additional Upgrade Needed	Field Identification Needed
TRA-A46		X						X									X			X							X							
TRA-A47		X						X									X			X							X							
TRA-A48		X						X									X			X							X							
TRA-A50		X						X									X			X							X							
TRA-A52		X						X									X			X							X							
TRA-A53		X						X									X			X							X							
TRA-A54		X						X									X			X							X							
TRA-A55		X						X									X			X							X						X	
TRA-A56		X						X									X			X							X						X	
TRA-A57		X						X									X			X							X							
TRA-A58		X						X									X			X							X							
TRA-A59		X						X									X			X							X							
TRA-A60		X						X									X			X							X							
TRA-A61		X						X									X			X							X							
TRA-A62		X						X									X			X							X						X	
TRA-A63		X						X									X			X							X						X	
TRA-A64		X						X									X			X							X						X	
TRA-A65		X						X									X			X							X						X	
TRA-A66		X						X									X			X							X						X	
TRA-A67		X						X									X			X							X						X	
TRA-A68		X						X									X			X							X							
TRA-A69		X						X									X			X							X						X	
TRA-A70		X						X									X			X							X						X	
TRA-A71		X						X									X			X							X						X	
TRA-A72		X						X									X			X							X						X	
TRA-A73		X						X									X			X							X						X	
TRA-A74		X						X									X			X							X						X	
TRA-A75		X						X									X			X							X							

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WELL NAME	WELL USE	USGS Observation	Contractor Observation	DOE 5400.1 Monitoring	CERCLA Characterization	RCRA Monitoring	CONSTRUCTION CATEGORY	Surface Percolation Well	Borehole	Gas Port / Injection	Neutron Access	Radiation Monitoring	Soil Moisture / Vapor Port	COMPLETION ZONE	Aquifer	Vadose Zone	Surface Sediment	<18 ft. Deep	WELL STATUS	Active	Proposed for Use	Inactive / (No documented Use)	NOT EVAL. STATE REGS.	STATE REGS. EVALUATION	In Compliance	In Compliance / Minor Deficiencies	Request Variance	Remediation Recommended	Consider Abandonment	RCRA EVALUATION	In Compliance / Minor Deficiencies	INEL BMP EVALUATION	Additional Upgrade Needed	Field Identification Needed
TRA-A77		X						X									X			X							X							
TRA-A78		X						X									X			X							X						X	
TRA-A79		X						X									X			X							X						X	
TRA-A80		X						X									X			X							X						X	
TRA-A81		X						X									X			X							X						X	
TRA-A82		X						X									X			X							X							
TRA-A83		X						X									X			X							X						X	
TRA-A84		X						X									X			X							X						X	
TRA-A85		X						X									X			X							X						X	
TRA-A86		X						X									X			X							X						X	
TRA-A87		X						X									X			X							X						X	

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NA=NOT APPLICABLE; ?= PROBABLE CATEGORY

PRODUCT. WELLS

WELL NAME	WELL USE / TYPE	Potable water Production	Raw Water Production	USGS Observation	CERCLA Characterization	WELL STATUS	Active	Inactive	To Be Decontaminated/Decommissioned	STATE DRINKING WATER REGS.	Acceptable	Request Variance	Remediation Recomended	Consider Alternate Use	Maintenance Required	STATE WELL CONST. REGS.	In Compliance	In Compliance / Minor Deficiencies	Request Variance	Remediation Recomended	Consider Abandonment
ANL																					
EBR II # 1		X					X						X						X		
EBR II # 2		X					X						X					X			
ARA																					
ARA-1		X						X	X					X				X			
ARA-3		X						X	X					X				X			
CFA																					
CFA-1		X					X						X						X		
CFA-2		X					X						X						X		
EBR																					
EBR-1		X					X					X							X		
ICPP																					
CPP-01		X	X				X						X							X	
CPP-02		X	X				X						X							X	
CPP-04		X					X				X									X	
NRF																					
NRF-1		X					X				X				X				X		
NRF-2		X					X				X				X				X		
NRF-3		X					X				X				?			X			
NRF-4		X					X				X								X		
INEL (MIDDLE / NORTH / SOUTH)																					
BADGING FACILITY WELL		X					X					X	X		X			X			
EOCR PRODUCTION WELL		X						X							X			X			
FIRE STATION WELL			X				X								X			X			

*** = RAW WATER ONLY**
? = PROBABLE CATAGORY
Note: DECONTAMINATE AND DECOMMISSION REFERS TO ABOVE GROUND COMPLETION

PRODUCT WELLS

WELL NAME	WELL USE / TYPE	Potable water Production	Raw Water Production	USGS Observation	CERCLA Characterization	WELL STATUS	Active	Inactive	To Be Decontaminated/Decommissioned	STATE DRINKING WATER REGS.	Acceptable	Request Variance	Remediation Recomended	Consider Alternate Use	Maintenance Required	STATE WELL CONST. REGS.	In Compliance	In Compliance / Minor Deficiencies	Request Variance	Remediation Recomended	Consider Abandonment
HIGHWAY 3		X					X				X								X		
OMRE		X						X							X				X		
RIFLE RANGE WELL		X					X				X				X				X		
SITE-04			X				X				X								X		
PBF																					
SPERT-1 (PBF 1)		X					X						X						X		
SPERT-2 (PBF 2)		X					X				X							X			
RWMC																					
RWMC PRODUCTION		X					X								X			X			
TAN																					
FET-1 (CTF-1)		X					X				X								X		
FET -2 (CTF-2)		X					X					X	X						X		
ANP-01 (TSF 1)		X					X						X					X			
ANP-02 (TSF 2)		X					X				X							X			
ANP-08 (WRRTF)			X				X				X*							X			
TRA																					
TRA-01		X					X				X									X	
TRA-02		X						X						X						X	X
TRA-03		X					X				X							X			
TRA-04		X					X						X						X	X	

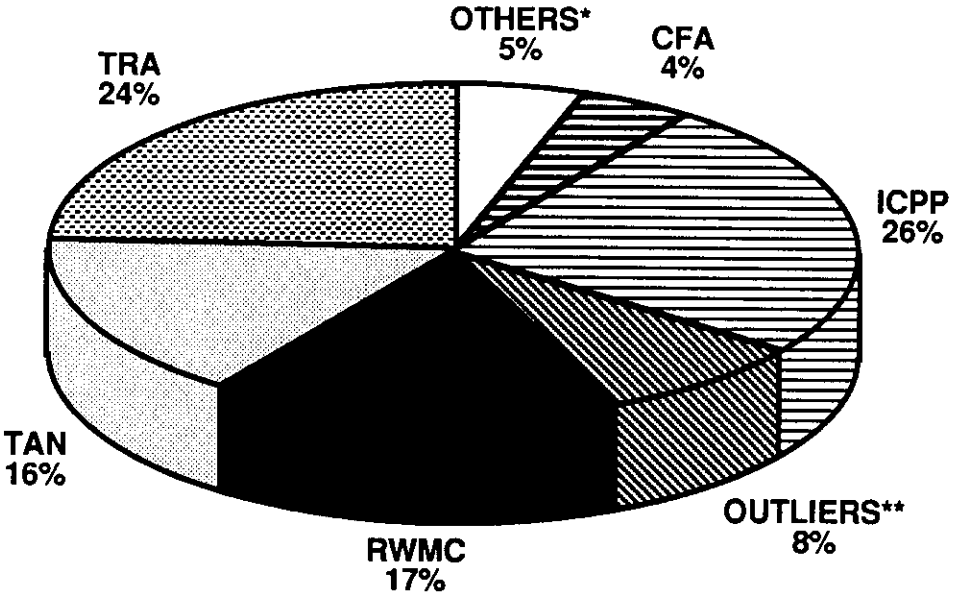
* = RAW WATER ONLY
? = PROBABLE CATAGORY
Note: DECONTAMINATE AND DECOMMISSION REFERS TO ABOVE GROUND COMPLETION

Appendix B

Well Fitness Checklists

INEL COMPREHENSIVE WELL SURVEY
WELL FITNESS EVALUATION

TOTAL INEL WELLS EVALUATED BY FACILITY

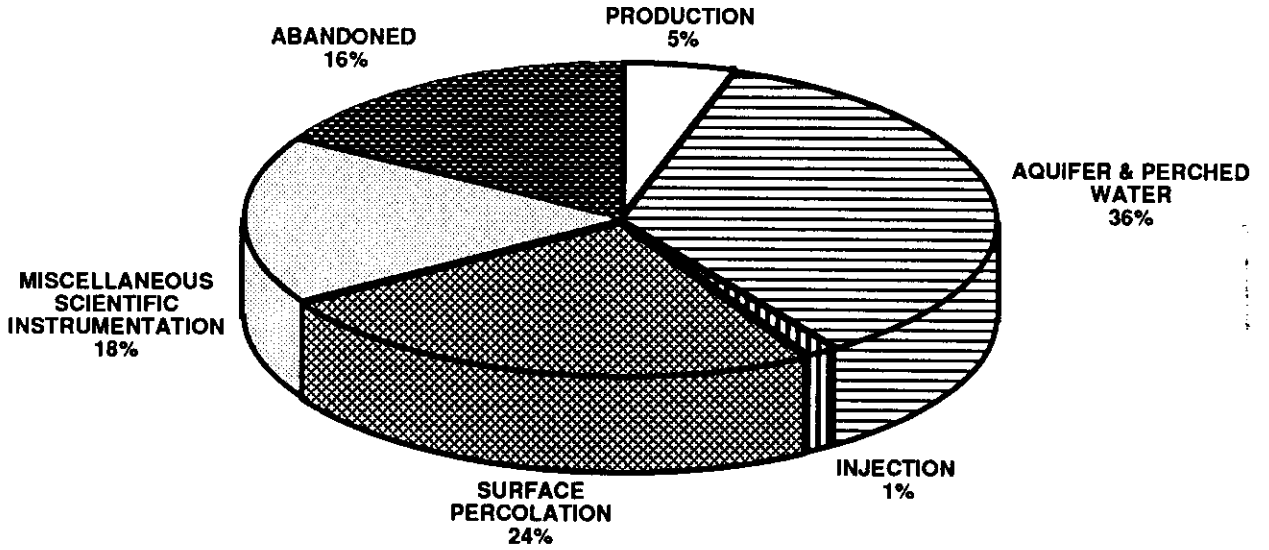


FACILITY	TOTAL WELLS
OTHERS*	35
CFA	28
ICPP	164
OUTLIERS**	54
RWMC	107
TAN	106
TRA	153
TOTAL	647

*Facilities with a few number of wells
**INEL North, Middle and South

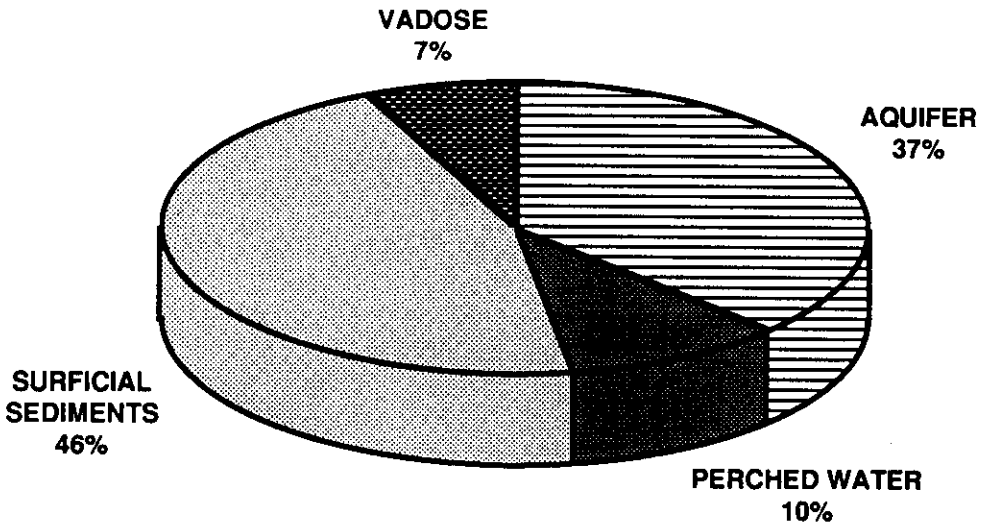
INEL COMPREHENSIVE WELL SURVEY
WELL FITNESS EVALUATION

TOTAL INEL WELLS EVALUATED BY TYPE



TOTAL INEL WELLS EVALUATED	TOTAL
PRODUCTION	33
AQUIFER & PERCHED WATER	229
INJECTION	8
SURFACE PERCOLATION	157
MISCELLANEOUS SCIENTIFIC INSTRUMENTATION	115
ABANDONED	105
TOTAL	647

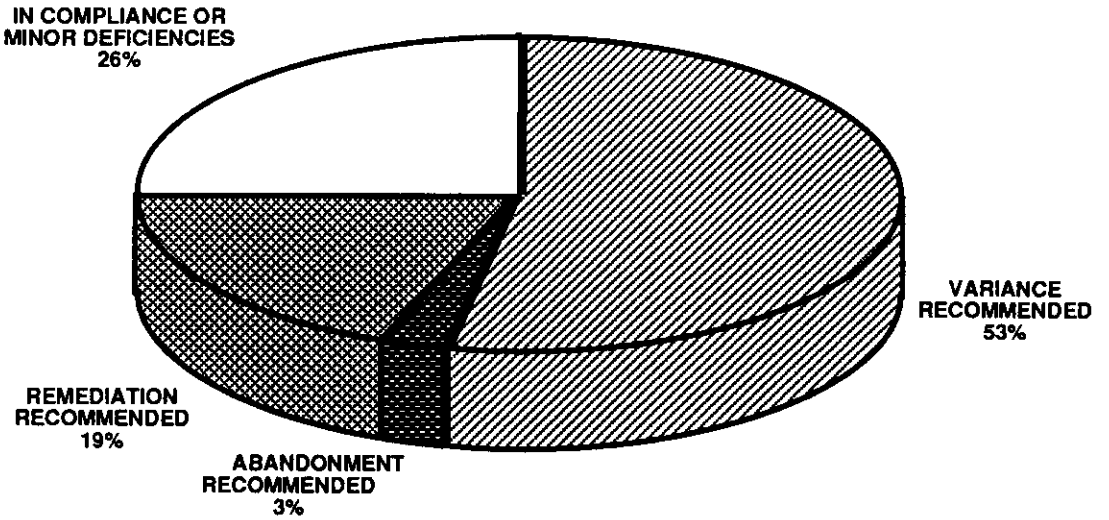
COMPLETION ZONES OF THE CURRENT WELLS AND BORINGS AT THE INEL



COMPLETION ZONE	TOTAL
AQUIFER	203
PERCHED WATER	53
SURFICIAL SEDIMENTS	249
VADOSE	37
TOTAL	542

INEL COMPREHENSIVE WELL SURVEY WELL FITNESS EVALUATION

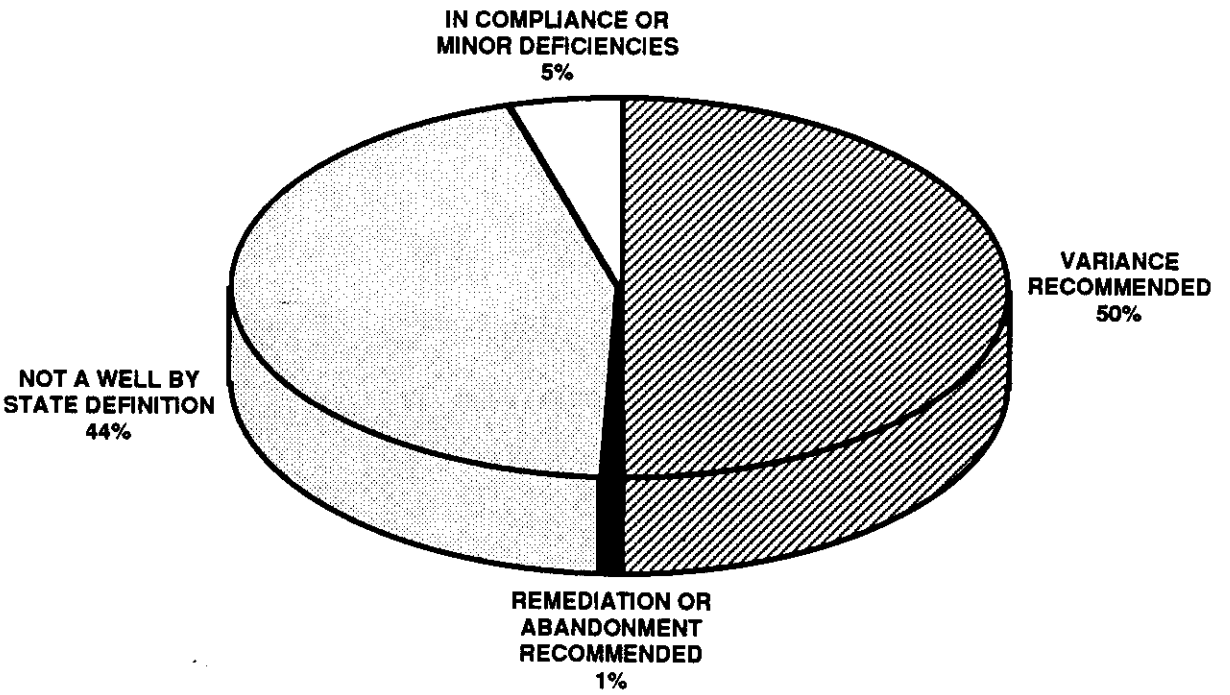
SUMMARY OF EVALUATIONS FOR AQUIFER AND PERCHED WATER WELLS TO STATE REGULATIONS



STATUS	TOTAL
IN COMPLIANCE OR MINOR DEFICIENCIES	60
VARIANCE RECOMMENDED	124
ABANDONMENT RECOMMENDED	6
REMEDIATION RECOMMENDED	45

INEL COMPREHENSIVE WELL SURVEY
WELL FITNESS EVALUATION

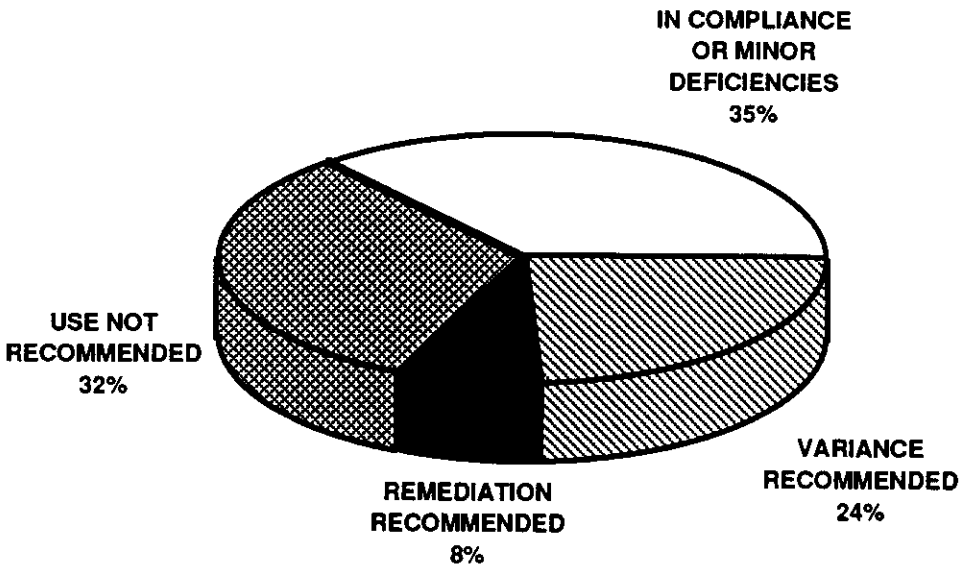
SUMMARY OF EVALUATIONS FOR MISCELLANEOUS WELLS AND BORINGS TO STATE REGULATIONS



STATUS	TOTAL
VARIANCE RECOMMENDED	140
REMEDIATION OR ABANDONMENT RECOMMENDED	3
NOT A WELL BY STATE DEFINITION	125
IN COMPLIANCE OR MINOR DEFICIENCIES	13
TOTAL	281

INEL COMPREHENSIVE WELL SURVEY
WELL FITNESS EVALUATION

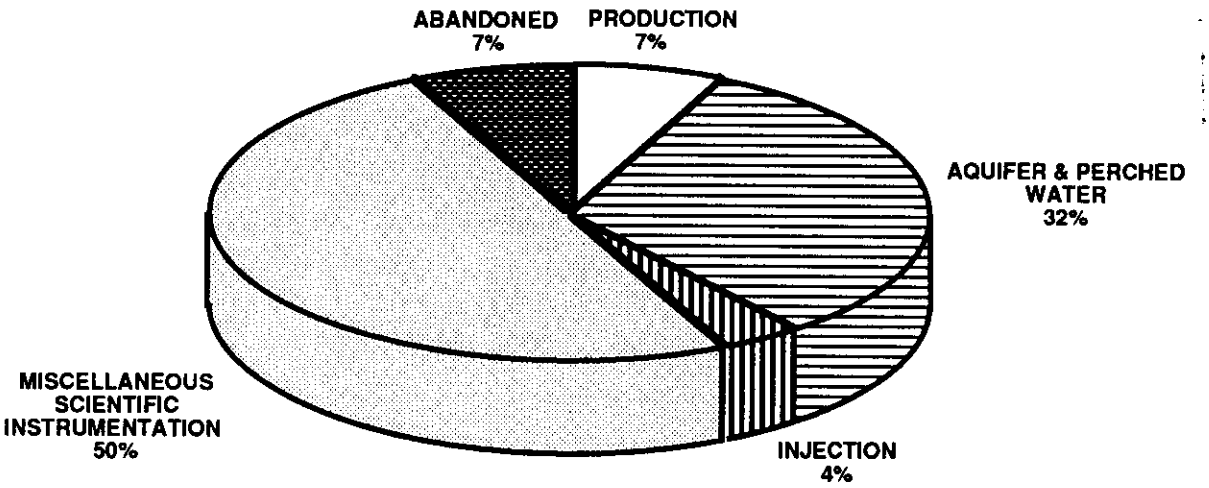
SUMMARY OF EVALUATIONS FOR INEL WELLS TO RCRA GUIDELINES



STATUS	TOTAL
IN COMPLIANCE OR MINOR DEFICIENCIES	42
VARIANCE RECOMMENDED	29
REMEDIATION RECOMMENDED	9
USE NOT RECOMMENDED	38
TOTAL	118

INEL COMPREHENSIVE WELL SURVEY
WELL FITNESS EVALUATION

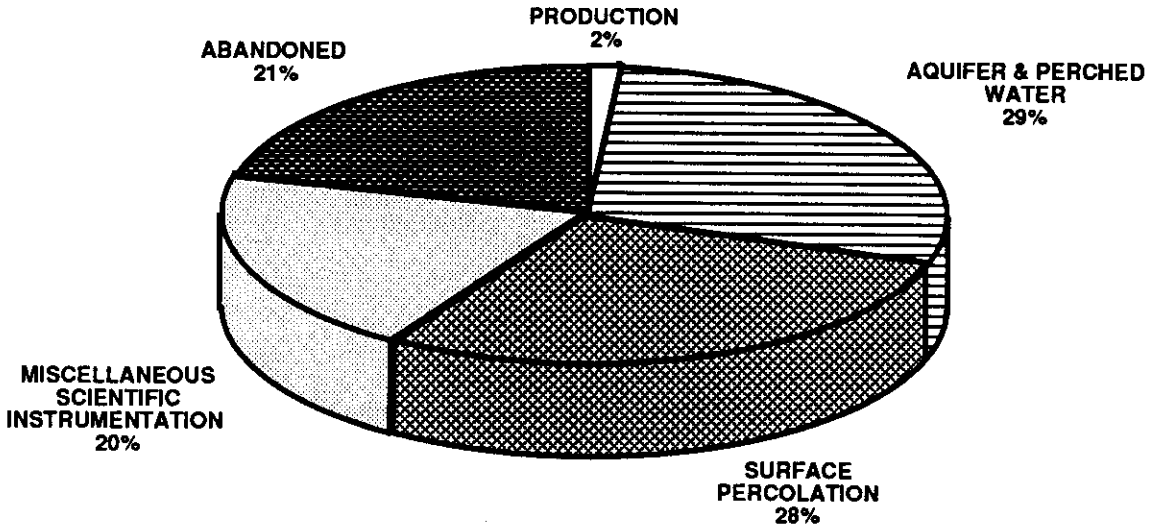
CFA WELLS EVALUATED BY TYPE



RWMC WELLS EVALUATED	TOTAL
PRODUCTION	2
AQUIFER & PERCHED WATER	9
INJECTION	1
MISCELLANEOUS SCIENTIFIC INSTRUMENTATION	14
ABANDONED	2
TOTAL	28

INEL COMPREHENSIVE WELL SURVEY
WELL FITNESS EVALUATION

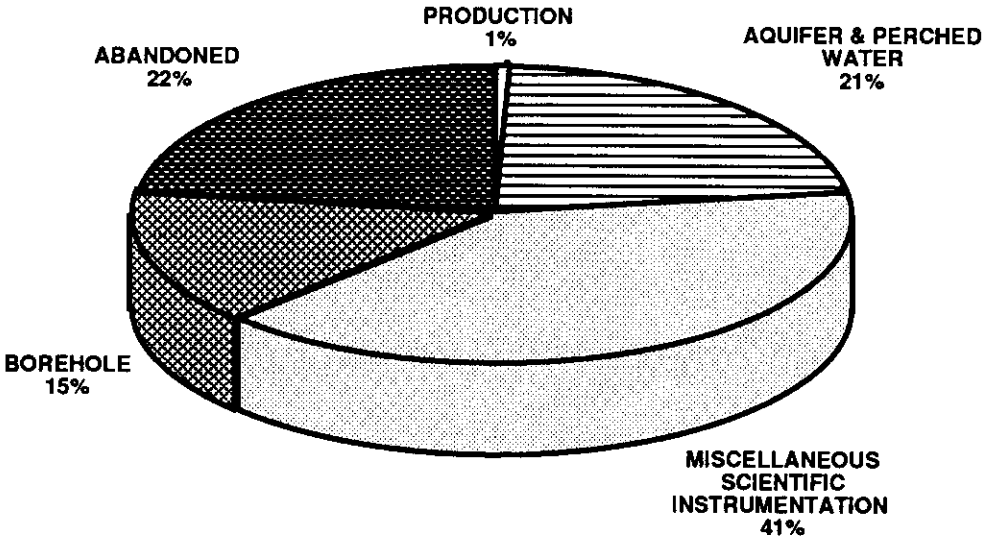
ICPP WELLS EVALUATED BY TYPE



ICPP WELLS EVALUATED	TOTAL
PRODUCTION	3
AQUIFER & PERCHED WATER	47
SURFACE PERCOLATION	47
MISCELLANEOUS SCIENTIFIC INSTRUMENTATION	33
ABANDONED	34
TOTAL	164

INEL COMPREHENSIVE WELL SURVEY
WELL FITNESS EVALUATION

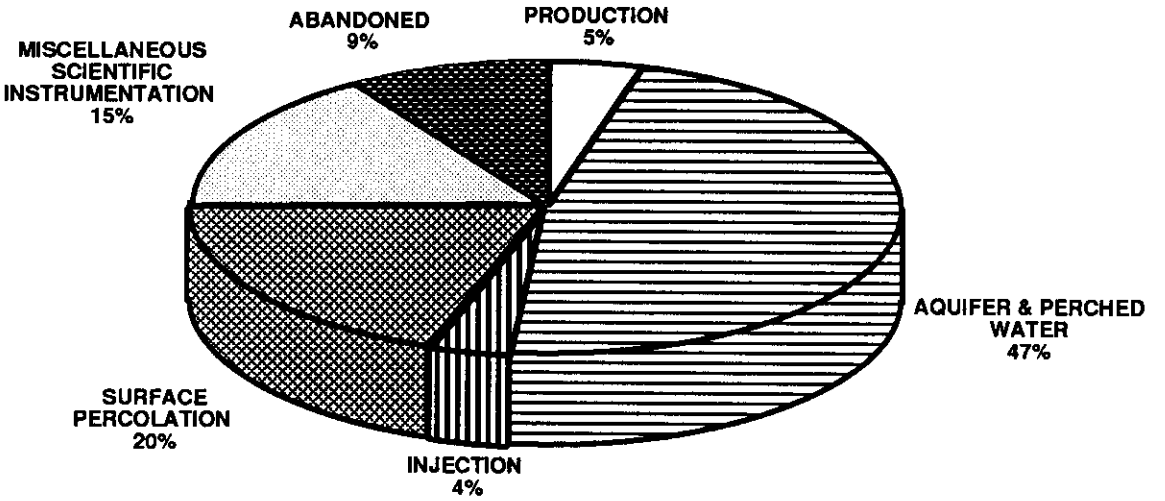
RWMC WELLS EVALUATED BY TYPE



RWMC WELLS EVALUATED	TOTAL
PRODUCTION	1
AQUIFER & PERCHED WATER	23
MISCELLANEOUS SCIENTIFIC INSTRUMENTATION	43
BOREHOLE	16
ABANDONED	24
TOTAL	107

INEL COMPREHENSIVE WELL SURVEY
WELL FITNESS EVALUATION

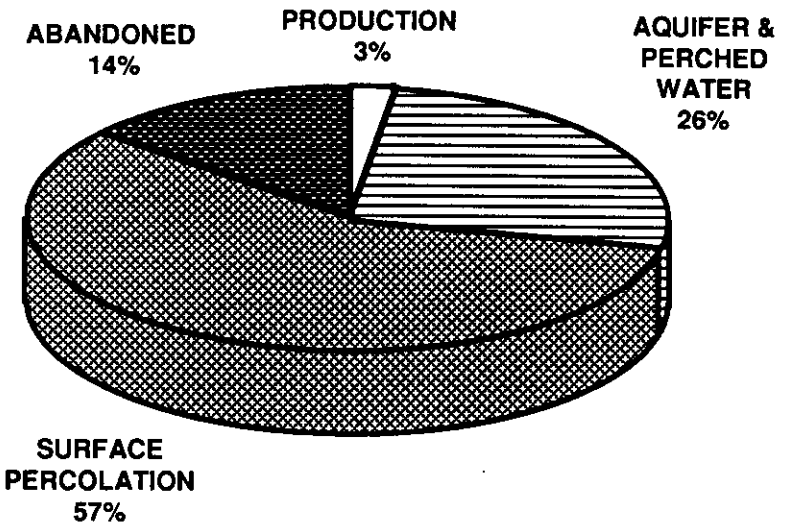
TAN WELLS EVALUATED BY TYPE



TAN WELLS EVALUATED	TOTAL
PRODUCTION	5
AQUIFER & PERCHED WATER	52
INJECTION	4
SURFACE PERCOLATION	22
MISCELLANEOUS SCIENTIFIC INSTRUMENTATION	17
ABANDONED	10
TOTAL	110

INEL COMPREHENSIVE WELL SURVEY
WELL FITNESS EVALUATION

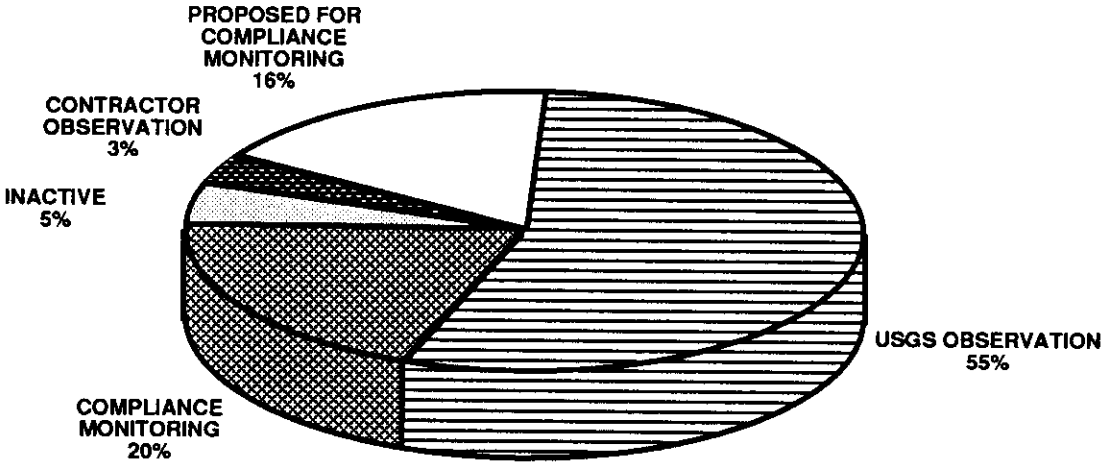
TRA WELLS EVALUATED BY TYPE



TRA WELLS EVALUATED	TOTAL
PRODUCTION	4
AQUIFER & PERCHED WATER	40
SURFACE PERCOLATION	88
ABANDONED	21
TOTAL	153

INEL COMPREHENSIVE WELL SURVEY
WELL FITNESS EVALUATION

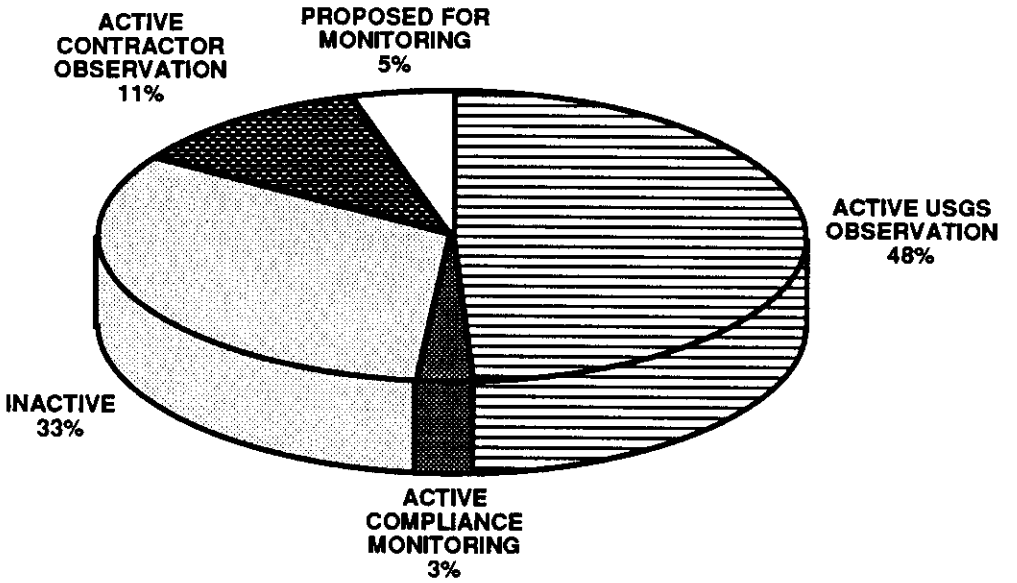
TYPE OF AQUIFER AND PERCHED WATER WELL USE AT THE INEL



STATUS	TOTAL
CONTRACTOR OBSERVATION	10
PROPOSED FOR COMPLIANCE MONITORING	52
USGS OBSERVATION	164
COMPLIANCE MONITORING	60
INACTIVE	14

INEL COMPREHENSIVE WELL SURVEY
WELL FITNESS EVALUATION

CURRENT STATUS OF MISCELLANEOUS WELLS AND BOREHOLES AT THE INEL



MISCELLANEOUS WELL TYPES	TOTAL
ACTIVE USGS OBSERVATION	137
ACTIVE COMPLIANCE MONITORING	8
INACTIVE	91
ACTIVE CONTRACTOR OBSERVATION	31
PROPOSED FOR MONITORING	13
TOTAL	280

CHECKLIST FOR ABANDONED/DESTROYED WELLS AND BORINGS

Location ANL-W Well Name/No. ANL-M01

A. Sources for Well Abandonment

1) What sources indicated that the well was plugged or destroyed:
( ) Comprehensive Well Survey status: Inactive.
(X) INEL Well Catalog (field survey by K. Beard)
Field picture shows top of well filled with cement.
(X) Personal communication Chris Martin, ANL-W (Apr. 1993)
( ) Other _

2) Was the well located by field inspection and documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380)
(X) Well was located by field inspection
( ) Well was not located by field inspection.

B. Abandonment Procedures

1) How was the well abandoned or destroyed:
( ) Backfilled
( ) Buried
(X) Grouted
( ) Other
( ) Not documented

2) List procedure and amounts of material used to abandon the well:_
Not documented

C. Well Casing

1) Does the well contain surface or other well casing:
Yes X No _ Not Documented _

2) Was the annular space between the casing and borehole grouted:
Yes X No _ Not Documented _ N/A _

D. Compliance with State Regulations

State of Idaho Reg.3.12.1. Permanently abandoned wells may have the casing removed or left in place and shall be filled with bentonite grout, cement grout, concrete, puddling clay, or other material as required to stop the upward or downward movement of water and prevent the waste and/or contamination of the ground water.

CHECKLIST FOR ABANDONED/DESTROYED WELLS AND BORINGS

Location ANL-W Well Name/No. ANL-M01

1) Total depth of well 54.5 ft. Top of basalt .5 ft

2) Was the well properly abandoned in accordance with Idaho State regulations:
Yes X No _ Not Documented _ Not Certain _
Explanation: The well was sealed with cement from the bottom to the ground surface (pers. comm. Chris Martin, ANL-W, Apr. 1993).

3) Are additional abandonment procedures necessary:
Yes _ No X Not Certain _

 GEOLOGIC LOG Well Name ANL-M01

Source: Drilling and Lithology Log, Generalized Lithology Log

****

Interval (feet below surface)

Begin	End	Description
0	.5	Brown Clayey Silt (Loess)
.5	8	Fractured Vesicular Basalt with Crevices
8	15.5	Dense Gray Basalt
15.5	22	Sandy Basalt with Silt Infillings
22	24.5	Dense Gray Basalt
24.5	26	Fractured Vesicular Basalt
26	30	Brown Sandy Silt with Basalt (Very Moist)
30	41.5	Dense Gray Basalt
41.5	42	Brown Sandy Silt with Basalt
42	44	Basalt with Sandy Silt Interbeds
44	48	Brown Clayey Silt
48	49	Red to Brown Sand with Cinders and Basalt
49	50.6	Gray to Tan Clayey Silt
50.6	54.5	Fractured Vesicular Gray Basalt

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date March 22, 1993

WellName: ANL-M01

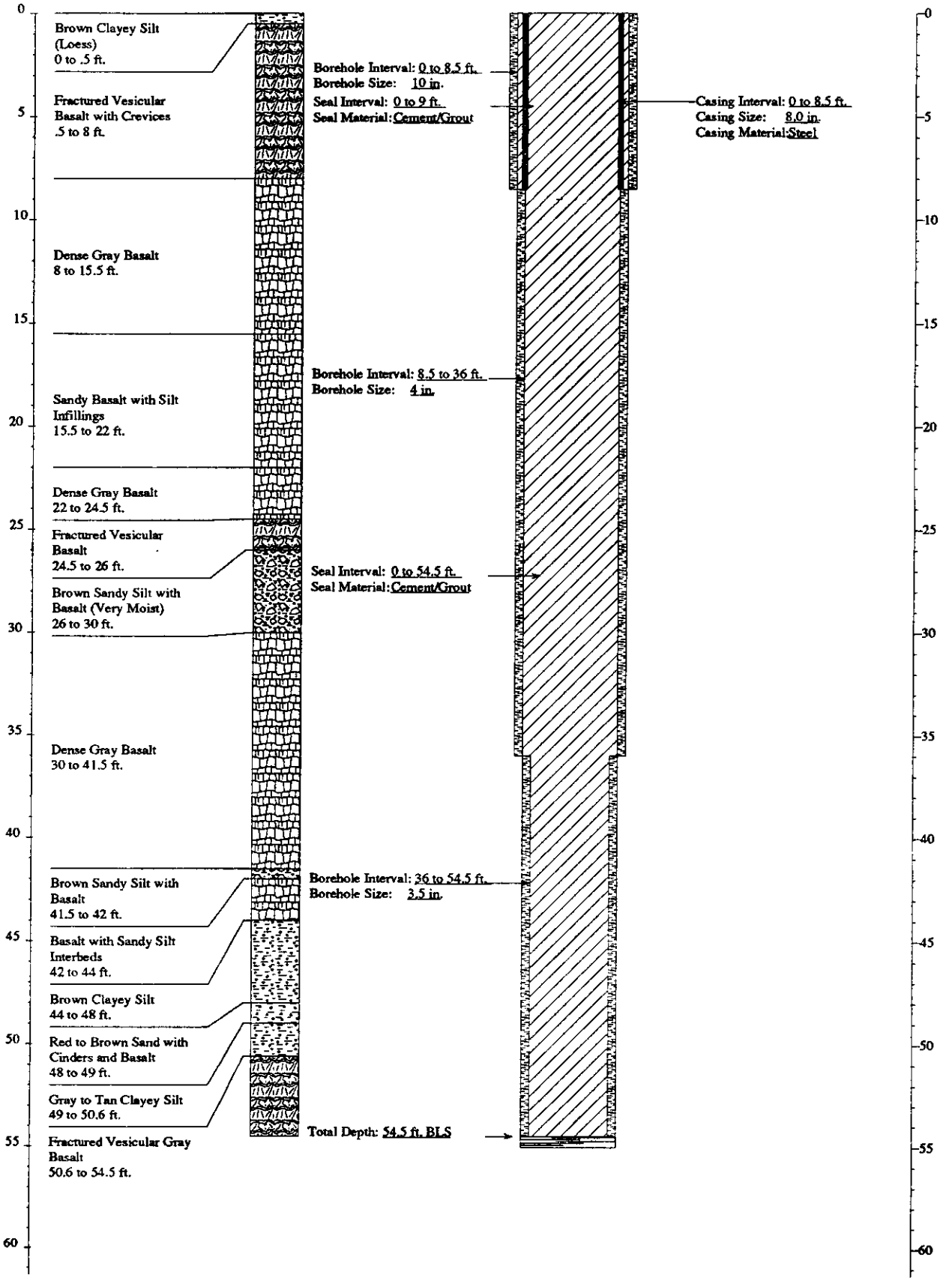
07/07/1993

Facility: ANL
Well Type: NA
Well Status: Abandoned
Year Drilled: 1987
Total Depth: 54.5

Easting: 369672.54
Northing: 704486.24
Longitude: 1123931.00
Latitude: 433555.00
Completion Depth: 54.5

Driller: Hawley
Geologist: NF
Drilling Method: Air rotary
Drilling Fluid: NF
Land Surface: 5120.21

Water Level: DRY
Water Level Date: 09/01/87
Water Level Access: NF



CHECKLIST FOR ABANDONED/DESTROYED WELLS AND BORINGS

Location ANL-W Well Name/No. ANL-M02

A. Sources for Well Abandonment

1) What sources indicated that the well was plugged or destroyed:
( ) Comprehensive Well Survey status: Inactive.
(X) INEL Well Catalog (field survey by K. Beard)
Field picture shows top of well filled with cement.
(X) Personal communication Chris Martin, ANL-W (Apr. 1993)
( ) Other _

2) Was the well located by field inspection and documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380)
(X) Well was located by field inspection
( ) Well was not located by field inspection.

B. Abandonment Procedures

1) How was the well abandoned or destroyed:
( ) Backfilled
( ) Buried
(X) Grouted
( ) Other
( ) Not documented

2) List procedure and amounts of material used to abandon the well:_
Not documented

C. Well Casing

1) Does the well contain surface or other well casing:
Yes X No _ Not Documented _

2) Was the annular space between the casing and borehole grouted:
Yes X No _ Not Documented _ N/A _

D. Compliance with State Regulations

State of Idaho Reg.3.12.1. Permanently abandoned wells may have the casing removed or left in place and shall be filled with bentonite grout, cement grout, concrete, puddling clay, or other material as required to stop the upward or downward movement of water and prevent the waste and/or contamination of the ground water.

CHECKLIST FOR ABANDONED/DESTROYED WELLS AND BORINGS

Location ANL-W Well Name/No. ANL-M02

1) Total depth of well 80 ft. Top of basalt 9 ft

2) Was the well properly abandoned in accordance with Idaho State regulations:
Yes X No _ Not Documented _ Not Certain _
Explanation: The well was sealed with cement from the bottom to the ground surface (pers. comm. Chris Martin, ANL-W, Apr. 1993).

3) Are additional abandonment procedures necessary:
Yes _ No X Not Certain _

GEOLOGIC LOG

Well Name ANL-M02

Source: Generalized Lithology Log, Drilling and Lithology Log

****

Interval (feet below surface)

Begin	End	Description
0	9	Brown to Silty Sand
9	41	Fractured Vesicular Gray Basalt
41	46	Brown Clayey Silt
46	80	Fractured Vesicular Gray Basalt

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date March 22, 1993

WellName: ANL–M02

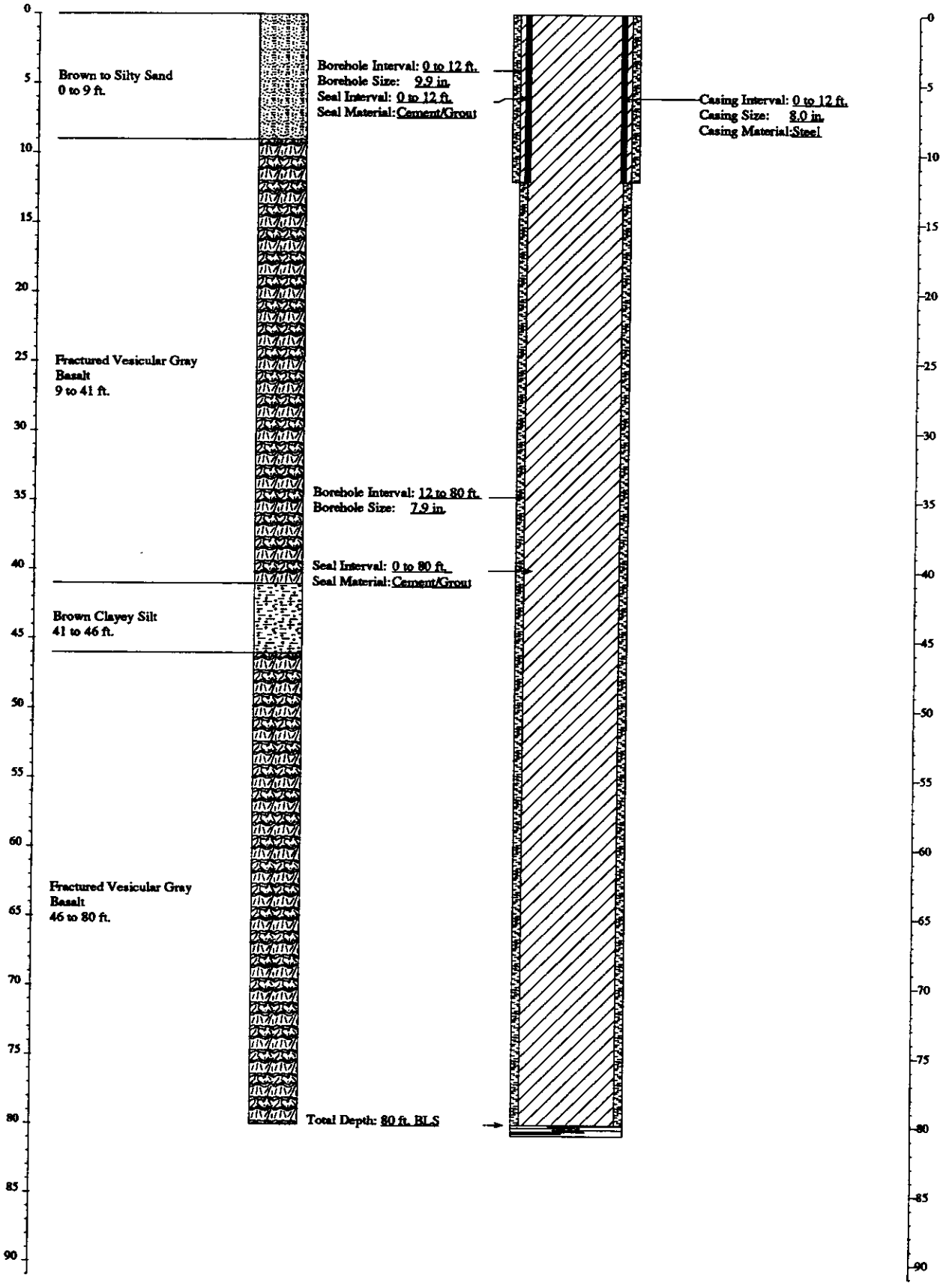
08/17/1993

Facility: ANL
Well Type: NA
Well Status: Abandoned
Year Drilled: 1987
Total Depth: 80

Easting: 369830.37
Northing: 704266.87
Longitude: 1123929.00
Latitude: 433553.00
Completion Depth: 80

Driller: Denning
Geologist: NF
Drilling Method: Air rotary
Drilling Fluid: Air/water
Land Surface: 5117.51

Water Level: DRY
Water Level Date: 09/14/87
Water Level Access: NF



CHECKLIST FOR ABANDONED/DESTROYED WELLS AND BORINGS

Location ANL-W Well Name/No. ANL-M03

A. Sources for Well Abandonment

1) What sources indicated that the well was plugged or destroyed:
( ) Comprehensive Well Survey status: Inactive.
(X) INEL Well Catalog (field survey by K. Beard)
Field picture shows top of well filled with cement.
(X) Personal communication Chris Martin, ANL-W, (Apr. 1993)
( ) Other _

2) Was the well located by field inspection and documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380)
(X) Well was located by field inspection.
( ) Well was not located by field inspection.

B. Abandonment Procedures

1) How was the well abandoned or destroyed:
( ) Backfilled
( ) Buried
(X) Grouted
( ) Other
( ) Not documented

2) List procedure and amounts of material used to abandon the well:_
Not documented

C. Well Casing

1) Does the well contain surface or other well casing:
Yes X No _ Not Documented _

2) Was the annular space between the casing and borehole grouted:
Yes X No _ Not Documented _ N/A _

D. Compliance with State Regulations

State of Idaho Reg.3.12.1. Permanently abandoned wells may have the casing removed or left in place and shall be filled with bentonite grout, cement grout, concrete, puddling clay, or other material as required to stop the upward or downward movement of water and prevent the waste and/or contamination of the ground water.

1) Total depth of well 60 ft. Top of basalt 8.2 ft.

CHECKLIST FOR ABANDONED/DESTROYED WELLS AND BORINGS

Location ANL-W Well Name/No. ANL-M03

2) Was the well properly abandoned in accordance with Idaho State regulations:
Yes X No _ Not Documented _ Not Certain _
Explanation: The well was sealed with bentonite from 45 to 60 ft and with cement from 45 ft to the ground surface (pers. comm. Chris Martin, ANL-W, Apr. 1993).

3) Are additional abandonment procedures necessary:
Yes _ No X Not Certain _

GEOLOGIC LOG

Well Name ANL-M03

Source: Generalized Lithology Log, Drilling and Lithology Log

****

Interval (feet below surface)

Begin	End	Description
0	8.2	Brown Silty Sand
8.2	31	Dense Gray Basalt
31	41	Highly Fractured Gray Basalt/Possible Voids
41	44	Brown Silty Sand
44	50	Fractured Basalt with Sediment Infillings
50	54	Silty Sand with Clay (Wet at 52 ft)
54	60	Fractured Basalt

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date March 22, 1993

WellName: ANL–M03

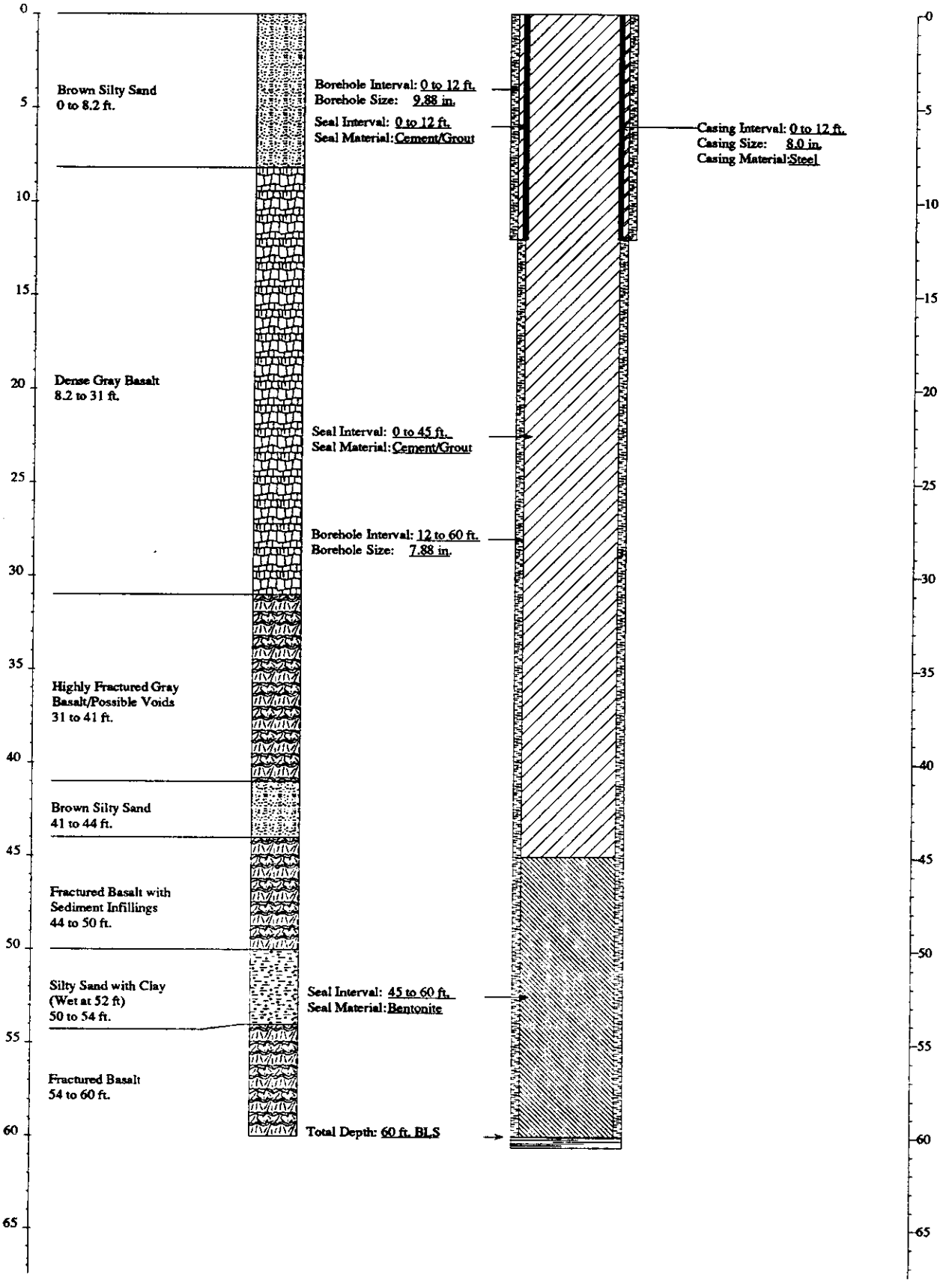
07/06/1993

Facility: ANL
Well Type: NA
Well Status: Abandoned
Year Drilled: 1987
Total Depth: 60

Easting: 369619.48
Northing: 703873.02
Longitude: 1123932.00
Latitude: 433549.00
Completion Depth: 45

Driller: Denning
Geologist: NF
Drilling Method: Air rotary
Drilling Fluid: Water
Land Surface: 5116.91

Water Level: DRY
Water Level Date: 09/15/87
Water Level Access: NF



FITNESS-FOR-USE CHECKLIST FOR AQUIFER AND PERCHED GROUNDWATER MONITORING/OBSERVATION WELLS

LOCATION: ANL-W Well Name/No. ANL-M04

A. WELL USE

1) Year well was drilled: 1987

2) Current use for well:
( )DOE 5400.1 Monitoring
( )RCRA Monitoring ( )USGS Observation
( )CERCLA Characterization ( )No Documented Use
(X)Other: ANL checks periodically for water in the well.

3) Constituents monitored currently: None

4) Water level monitored: (Yes X No _ Insufficient data _) Well is currently dry.

5) Is the well used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well used or proposed for compliance/detection monitoring:
(Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/Contact person: ANL / Chris Martin

B. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells are being resurveyed as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890). The project started in the summer of 1992.

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes X No _) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes X No _)
4) Does the well contain a survey marker: (Yes X No _)
5) If 2, 3 or 4, or 4, is the well planned for upgrade: (Yes _ No _ N/A X)
6) Based on location of well, is existing or planned surface completion adequate:
(Yes X No _)

C. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ Insufficient Data _)
b) Access to measure water levels: (Yes X No _ Insufficient Data _)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes _ No _ N/A X)

b) If well is completed in alluvium, is borehole size at least 2 inches greater than the O.D. of casing: (Yes _ No _ N/A X)
Borehole size _ Casing size _)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater:
(Yes X No _ N/A _)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to top of bedrock: (Yes X No _ Uncertain _ Borehole size 10-in. (0 - 9 ft.) 8-in. (9 - 68 ft.) Casing size 8-in. I.D. or O.D.? (0 - 9 ft.), 4-in. I.D. or O.D.? (0 - 32 ft.). Explanation: Since the recorded borehole size is usually the auger or bit size, the actual borehole is larger than the size specified in most cases.)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Carbon Steel (surface casing)	8 I.D. or O.D.?	0 - 9	None	18	0.25	Yes
PVC	4 I.D. or O.D.?	0 - 18.5	Flush-threaded ?	12	0.25	Yes
Teflon Screen	4 I.D. or O.D.?	18.5 - 32	Flush-threaded	N/A	N/A	N.F.

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Fill Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
Cement Grout	0 - 9 (Surface casing seal)	Ready Mix cement with 5% bentonite	Yes
Volclay Grout Slurry	3.5 - 13.8	N.F.	Yes
Bentonite Pellets	13.8 - 17	N.F.	Yes
8/16 Silica Sand	17 - 30	N.F.	N/A
Native Fill	30 - 68	N.F.	No

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in the alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes X No Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced (provide intervals if there was more than one grouting event): N/A _ Uncertain/not documented X Explanation for seal emplacement _

State of Idaho Reg. 3.3.1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes X No _) Explanation The well is located adjacent to the ANL industrial waste pond. The well monitors perched water 11 feet below the top of the basalt.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X Insufficient data _) Explanation (Qualify data/specify perched intervals if applicable) No evidence was found of saturated formations above the monitoring interval from the CWS file or the 1988 geophysical logs.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: Yes, the casing is sealed from the ground surface to the top of the filter pack. Although the borehole was backfilled with native material below the filter pack, the permeability of the backfill is sufficiently low to contain the perched water.

4) Gravel Pack. Does the well contain a gravel pack: (Yes X No _) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes X No _) Explanation Bentonite and grout seal the well above the gravel pack.

D. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X). (If no, proceed to section E)

The State of Idaho Well Construction Regulations and INEL Best Management Practices that overlap with RCRA guidelines and regulations will not be duplicated in this section.

1) Were the drill rig, equipment, casing and screen steam cleaned before drilling and installation: (Yes _ No _ No documentation _) Explanation _

2) Were drilling additives used: (Yes _ No _ Uncertain/No documentation _) Additive(s)/Quantity _

3) Are the casing (that portion which is within the sampling interval), the screen, the pump and the pump discharge pipe constructed of nonreactive material which does not affect/interfere with chemical, physical, biological or radiological constituents of interests: (Yes _ No _)

Material

Casing _____

Screen _____

Pump _____

Discharge Pipe _____

Explanation _____

4) Is the screen factory fabricated: (Yes _ No _ No screen _) Type _

5) Is the monitoring interval adequate to detect the contaminants of concern, i.e. "floaters", "sinkers" or dissolved constituents: (Yes _ No _) Explanation _

6) Is the monitoring interval greater than 30 feet in length: (Yes _ No _) of does the well monitor more than one type of lithology: (Yes _ No _) Monitoring interval _

7) Is the filter pack present: (Yes _ No _) If yes, is the filter pack comprised of chemically inert material: (Yes _ No _ Uncertain _ N/A _) Does it extend no more than 2 feet above above screen (Yes _ No _ N/A _) Filter pack type Filter pack interval _

8) Has the well been developed to ensure turbid-free groundwater samples, i.e. <5 NTUs: (Yes _ No _ Not Documented _) and to restore the natural hydraulic conductivity of the formation, i.e. stabilization of parameters: (Yes _ No _ Not Documented _) Well development type and duration _

9) Is the pump intake location documented: (Yes _ No _ Depth _)

10) Does the pump type collect representative ground-water samples: (Yes _ No _ Not Documented _) Type_ Explanation _

E. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: None

N.F. - Not Found/No Documentation
N/A - Not Applicable

F. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: EG&G Observation/Regulations and INEL Best Management Practices

( ) Well complies with applicable regulations and is acceptable for intended use.
( ) Well complies with applicable regulations except for minor construction details and is acceptable for intended use.
(X) Well does not meet applicable regulations, a variance should be obtained. If variance not obtained, remediation is required to comply with the regulations.
( ) Well does not meet applicable regulations and intended use, remediation is required.
( ) Well does not meet applicable regulations and should not be used for this purpose.
( ) Insufficient/uncertain data is available to evaluate compliance to the regulations.
( ) Abandonment, well is unneeded or cannot be remediated.

Deficiencies: The well complies with state well construction regulations except that the steel surface casing extends to a depth of 9 feet instead of the required 18 feet. Since the casing extends 3 feet into the basalt, a variance should be requested for this. Also, no documentation was found for the PVC joint type and the Teflon casing thickness, which are minor deficiencies.

Remediation: None

GEOLOGIC LOG

Well ANL-M04

Source: Drilling Log and Generalized Geologic Log

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Interval (feet below surface)

Begin	End	Description
0	6	Brown Silty Sand
6	13	Fractured Gray Basalt with Voids
13	15	Silty Sand or Basalt with Sediment Infilling
15	19	Dense Basalt
19	22	Fractured Basalt with Voids (Water at 20 ft)
22	29	Dense Basalt
29	31	Crevice or Interbed (No Returns)
31	44	Fractured Basalt
44	45	Interbed or Fracture / Void (No Returns)
45	60	Dense Basalt (No Returns)
60	62	Interbed or Fracture / Void (No Returns)
62	65	Fractured Basalt (No Returns)
65	68	Dense Basalt

COMPILED BY/ORGANIZATION: F.S. Mocker / GAI Date August 12, 1992

WellName: ANL-M04

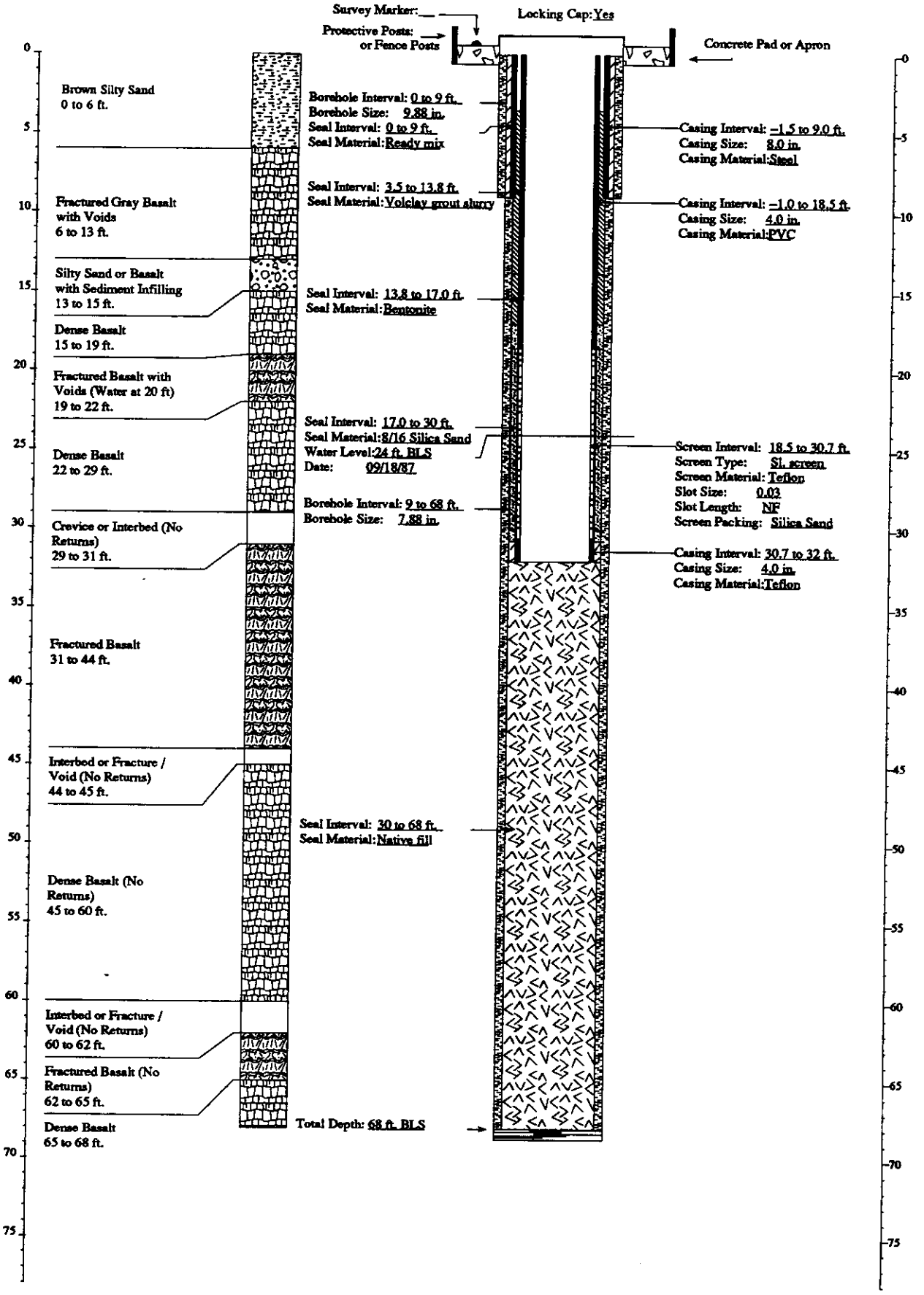
08/15/1993

Facility: ANL
Well Type: Observation Well
Well Status: Active
Year Drilled: 1987
Total Depth: 68

Easting: 369429.98
Northing: 704111.76
Longitude: 1123934.00
Latitude: 433552.00
Completion Depth: 30

Driller: Denning
Geologist: NF
Drilling Method: Air rotary
Drilling Fluid: Air/water
Land Surface: 5117.51

Water Level: 24
Water Level Date: 09/18/87
Water Level Access: NF



FITNESS-FOR-USE CHECKLIST FOR AQUIFER AND PERCHED GROUNDWATER MONITORING/OBSERVATION WELLS

LOCATION: ANL-W Well Name/No. ANL-M05

A. WELL USE

1) Year well was drilled: 1987

2) Current use for well:
( )DOE 5400.1 Monitoring
( )RCRA Monitoring ( )USGS Observation
( )CERCLA Characterization ( )No Documented Use
(X)Other: ANL checks periodically for water in the well.

3) Constituents monitored currently: None

4) Water level monitored: (Yes X No _ Insufficient data _) Well is currently dry.

5) Is the well used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well used or proposed for compliance/detection monitoring:
(Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/Contact person: ANL / Chris Martin

B. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells are being resurveyed as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890). The project started in the summer of 1992.

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes X No _) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes X No _)
4) Does the well contain a survey marker: (Yes X No _)
5) If no to 2, 3, or 4 is the well planned for upgrade: (Yes _ No _ N/A X)
6) Based on location of well, is existing or planned surface completion adequate:
(Yes X No _)

C. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ Insufficient Data _)
b) Access to measure water levels: (Yes X No _ Insufficient Data _)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes _ No _ N/A X)

b) If well is completed in alluvium, is borehole size at least 2 inches greater than the O.D. of casing: (Yes _ No _ N/A X)
Borehole size _ Casing size _)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater:
(Yes X No _ N/A _)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to top of bedrock: (Yes X No _ Uncertain _ Borehole size 10-in. (0 - 6.8 ft.), 8-in. (6.8 - 64 ft). Casing size 8-in. I.D. or O.D.? (0 - 6.8 ft.), 4-in. I.D. or O.D.? (0 - 60.9 ft.). Explanation: Since the recorded borehole size is usually the auger or bit size, the actual borehole is larger than the size specified in most cases.)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Carbon Steel (surface casing)	8 I.D. or O.D.?	0 - 6.8	None	25	0.25	Yes
PVC	4 I.D. or O.D.?	0 - 50.9	Flush-threaded	24	0.25	Yes
Teflon	4 I.D. or O.D.?	50.9 - 60.9	N.F.	N/A	N.F.	N.F.

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Fill Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
Cement Grout	0 - 6.8 (Surface casing seal)	3 sacks of Ready Mix (60 lbs.) with 5% bentonite	Yes
Bentonite	2.9 - 23.9	N.F.	Not specified in state reg. but probably yes
Volclay Grout	23.9 - 34.9	N.F.	Yes
Bentonite Pellets	34.9 - 36.9	N.F.	Yes
8/16 Silica Sand	36.9 - 60.9	N.F.	N/A
Cuttings	60.9 - 63.3	N.F.	N/A

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in the alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes X No Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced (provide intervals if there was more than one grouting event): N/A _ Uncertain/not documented X Explanation for seal emplacement _

State of Idaho Reg. 3,3,1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes X No _) Explanation The well is located about 60 feet from the ANL industrial waste pond. The well monitors perched water about 40 feet below the top of the basalt.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X Insufficient data _) Explanation (Qualify data/specify perched intervals if applicable) No evidence was found of saturated formations above the monitoring interval from the CWS file or the 1988 geophysical logs.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: Yes. The casing is sealed from the ground surface to the top of the filter pack.

4) Gravel Pack. Does the well contain a gravel pack: (Yes X No _) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes X No _) Explanation Bentonite and grout seal the well above the gravel pack.

D. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X). (If no, proceed to section E)

The State of Idaho Well Construction Regulations and INEL Best Management Practices that overlap with RCRA guidelines and regulations will not be duplicated in this section.

1) Were the drill rig, equipment, casing and screen steam cleaned before drilling and installation: (Yes _ No _ No documentation _) Explanation _

2) Were drilling additives used: (Yes _ No _ Uncertain/No documentation _) Additive(s)/Quantity _

3) Are the casing (that portion which is within the sampling interval), the screen, the pump and the pump discharge pipe constructed of nonreactive material which does not affect/interfere with chemical, physical, biological or radiological constituents of interests: (Yes _ No _)

Material

Casing _____

Screen _____

Pump _____

Discharge Pipe _____

Explanation _____

4) Is the screen factory fabricated: (Yes _ No _ No screen _) Type _

5) Is the monitoring interval adequate to detect the contaminants of concern, i.e. "floaters", "sinkers" or dissolved constituents: (Yes _ No _) Explanation _

6) Is the monitoring interval greater than 30 feet in length: (Yes _ No _) of does the well monitor more than one type of lithology: (Yes _ No _) Monitoring interval _

7) Is the filter pack present: (Yes _ No _) If yes, is the filter pack comprised of chemically inert material: (Yes _ No _ Uncertain _ N/A _) Does it extend no more than 2 feet above screen: (Yes _ No _ N/A_) Filter pack type _ Filter pack interval _

8) Has the well been developed to ensure turbid free groundwater samples, i.e. <5 NTUs: (Yes _ No _ Not Documented _) and to restore the natural hydraulic conductivity of the formation, i.e. stabilization of parameters: (Yes _ No _ Not Documented _) Well development type and duration _

9) Is the pump intake location documented: (Yes _ No _) Depth _

10) Does the pump type collect representative ground-water samples: (Yes _ No _ Not Documented _) Type_ Explanation _

E. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: None

N.F. - Not Found/No Documentation
N/A - Not Applicable

FITNESS-FOR-USE CHECKLIST FOR AQUIFER AND PERCHED GROUNDWATER MONITORING/OBSERVATION WELLS

LOCATION: ANL-W Well Name/No. ANL-M05

F. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: EG&G Observation/State Regulations and INEL Best Management Practices

( ) Well complies with applicable regulations and is acceptable for intended use.
( ) Well complies with applicable regulations except for minor construction details and is acceptable for intended use.
(X) Well does not meet applicable regulations, a variance should be obtained. If variance not obtained, remediation is required to comply with the regulations.
( ) Well does not meet applicable regulations and intended use, remediation is required.
( ) Well does not meet applicable regulations and should not be used for this purpose.
( ) Insufficient/uncertain data is available to evaluate compliance to the regulations.
( ) Abandonment, well is unneeded or cannot be remediated.

Deficiencies: The well complies with state regulations except that the steel surface casing extends to a depth of about 7 feet instead of the required 18 feet. Since the casing extends 6 feet into the basalt, a variance should be requested for this. Also, no documentation was found for the thickness and joint type of the Teflon casing (if a joint exists), which is a minor deficiency.

Remediation: None

GEOLOGIC LOG

Well ANL-MO5

Source: Drilling Log and Generalized Geologic Log

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Interval (feet below surface)

Begin	End	Description
0	1	Silty Sand to Clayey Silt
1	22	Gray Basalt (Large Vesicules or Voids)
22	43	Fractured Basalt
43	50	Fractured Basalt with Minor Water Seepage
50	63.3	Highly Fractured Basalt with Water

COMPILED BY/ORGANIZATION: F.S. Mocker / GAI Date August 29, 1992

WellName: ANL–M05

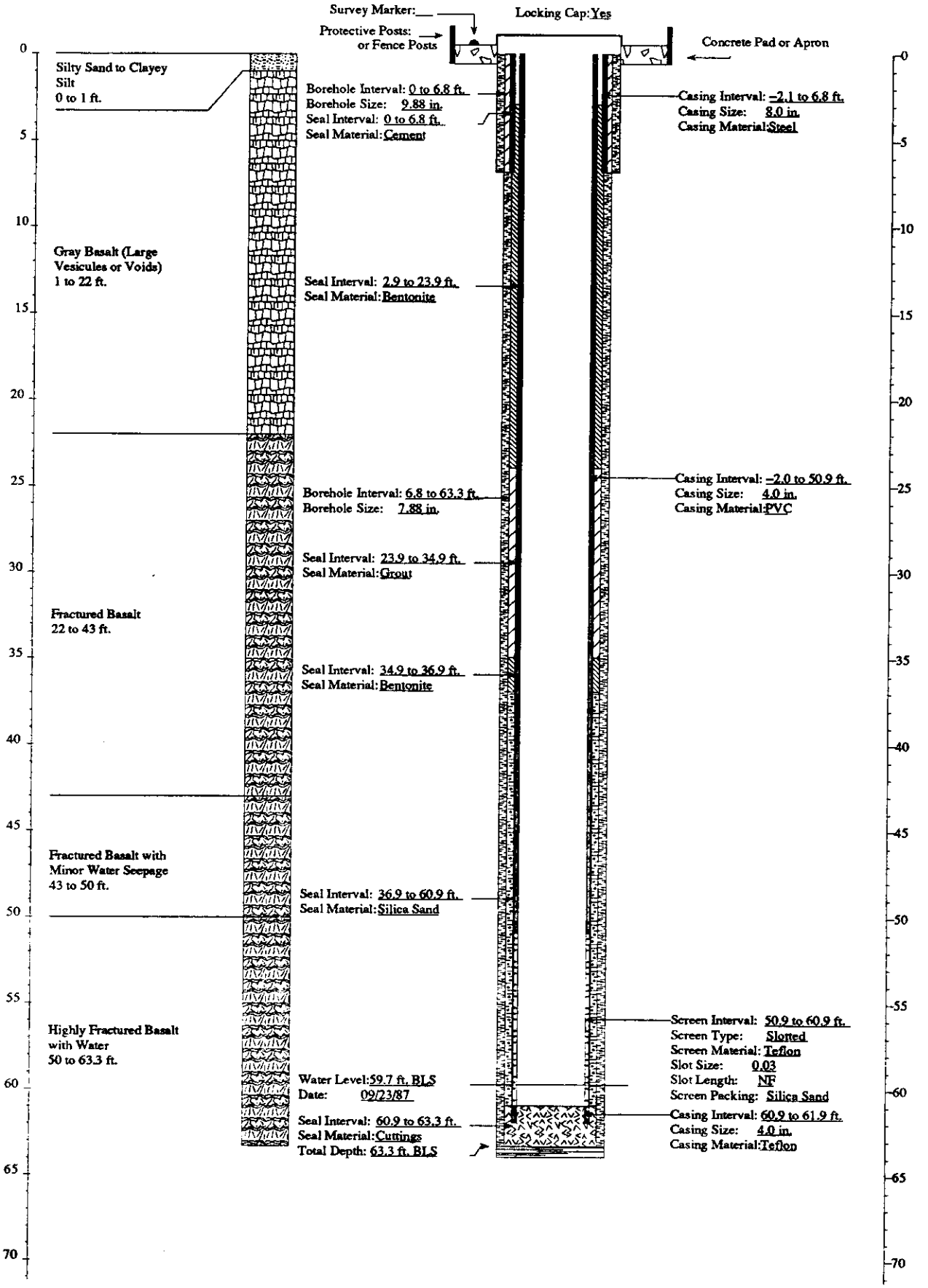
07/07/1993

Facility: ANL
Well Type: Observation Well
Well Status: Active
Year Drilled: 1987
Total Depth: 63.3

Easting: 369386.53
Northing: 704161.57
Longitude: 1123935.00
Latitude: 433552.00
Completion Depth: 61.9

Driller: Denning
Geologist: NF
Drilling Method: Air rotary
Drilling Fluid: Air/water
Land Surface: 5122.01

Water Level: 59.7
Water Level Date: 09/23/87
Water Level Access: NF



FITNESS-FOR-USE CHECKLIST FOR AQUIFER AND PERCHED GROUNDWATER MONITORING/OBSERVATION WELLS

LOCATION: ANL-W Well Name/No. ANL-M06

A. WELL USE

1) Year well was drilled: 1987

2) Current use for well:
( )DOE 5400.1 Monitoring
( )RCRA Monitoring ( )USGS Observation
( )CERCLA Characterization ( )No Documented Use
(X)Other: ANL checks periodically for water in the well.

3) Constituents monitored currently: None

4) Water level monitored: (Yes X No _ Insufficient data _) Well is currently dry.

5) Is the well used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/Contact person: ANL / Chris Martin

B. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells are being resurveyed as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890). The project started in the summer of 1992.

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes X No _) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes X No _)
4) Does the well contain a survey marker: (Yes X No _)
5) If 2, 3 or 4, is the well planned for upgrade: (Yes _ No _ N/A X)
6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _)

C. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ Insufficient Data _)
b) Access to measure water levels: (Yes X No _ Insufficient Data _)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes _ No _ N/A X)

b) If well is completed in alluvium, is borehole size at least 2 inches greater than the O.D. of casing: (Yes _ No _ N/A X)
Borehole size _ Casing size _)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater:
(Yes X No _ N/A _)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to top of bedrock: (Yes X No _ Borehole size 10-in. (0 - 10 ft.), 8-in. (10 - 67ft.) Casing size 8-in. I.D. or O.D.? (0 - 10 ft.), 6-in. I.D. or O.D.? (0 - 160 ft.) Explanation: Since the recorded borehole size is usually the auger or bit size, the actual borehole is larger than the size specified in most cases.)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Steel (surface casing)	8 I.D. or O.D.?	0 - 10	None	24	0.25	Yes
Steel	6 I.D. or O.D.?	0 - 160	N.F.	24	0.25	Yes

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Fill Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
Concrete / Bentonite	0 - 10	2 sacks Ready Mix, 1 sack bentonite (lower part of annulus)	Yes
Cement Grout	20 - 67	4 yd^3 of cement used to stabilize borehole during drilling	Yes
Cement Grout	150 - 160 (bottom of 6-in. casing set in cement)	N.F.	Yes
Open Hole	160 - 406	N/A	N/A
Bentonite	406 - 412	N.F.	Yes
Silica Sand (Fill Not Gravel Pack)	412 - 423	N.F.	N/A

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in the alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes X No Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced (provide intervals if there was more than one grouting event): N/A _ Uncertain/not documented _ Explanation for seal emplacement A tremie pipe was used to install a bentonite seal and the sand fill material.

State of Idaho Reg. 3,3,1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes X No _) Explanation The well is located about 100 feet from the ANL industrial waste pond. The well monitors perched water in the basalt from 160 to 406 feet bls.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes X No _ Insufficient data _) Explanation (Qualify data/specify perched intervals if applicable) Water was measured at 62.5 feet bls prior to extending the well from 64.8 to 423 feet bls. Also the drilling log mentions water seepage between 43 and

60 feet bls and the 1987 neutron log indicates that partially saturated zones may have existed between 40 and 140 feet bls.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: No, although the 8-inch casing is sealed, the 6-inch casing has no documented seal except at the bottom at 160 feet bls. Also the well is open from 160 to 406 feet bls.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X) Explanation

D. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X). (If no, proceed to section E)

The State of Idaho Well Construction Regulations and INEL Best Management Practices that overlap with RCRA guidelines and regulations will not be duplicated in this section.

1) Were the drill rig, equipment, casing and screen steam cleaned before drilling and installation: (Yes _ No _ No documentation _) Explanation _

2) Were drilling additives used: (Yes _ No _ Uncertain/No documentation _) Drilling Method _ Additive(s)/Quantity _

3) Are the casing (that portion which is within the sampling interval), the screen, the pump and the pump discharge pipe constructed of nonreactive material which does not affect/interfere with chemical, physical, biological or radiological constituents of interests: (Yes _ No _)

Material

Casing _____

Screen _____

Pump _____

Discharge Pipe _____

Explanation _____

4) Is the screen factory fabricated: (Yes _ No _ No screen _) Type _

5) Is the monitoring interval adequate to detect the contaminants of concern, i.e. "floaters", "sinkers" or dissolved constituents: (Yes _ No _) Explanation _

6) Is the monitoring interval greater than 30 feet in length: (Yes _ No _) of does the well monitor more than one type of lithology: (Yes _ No _) Monitoring interval _

7) Is the filter pack present: (Yes _ No _) If yes, is the filter pack comprised of chemically inert material: (Yes _ No _ Uncertain _ N/A _) Does it extend no more than 2 feet above screen: (Yes _ No _ N/A_) Filter pack type _ Filter pack interval _

8) Has the well been developed to ensure turbid free groundwater samples, i.e. <5 NTUs: (Yes _ No _ Not Documented _) and to restore the natural hydraulic conductivity of the formation, i.e. stabilization of parameters: (Yes _ No _ Not Documented _) Well development type and duration _

9) Is the pump intake location documented: (Yes _ No _) Depth _

10) Does the pump type collect representative ground-water samples: (Yes _ No _ Not Documented _) Type_ Explanation _

E. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: None

N.F. - Not Found/No Documentation
N/A - Not Applicable

F. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: EG&G Observation/State Regulations and INEL Best Management Practices

( ) Well complies with applicable regulations and is acceptable for intended use.
( ) Well complies with applicable regulations except for minor construction details and is acceptable for intended use.
( ) Well does not meet applicable regulations, a variance should be obtained. If variance not obtained, remediation is required to comply with the regulations.
(X) Well does not meet applicable regulations and intended use, remediation is required.
( ) Well does not meet applicable regulations and should not be used for this purpose.
( ) Insufficient/uncertain data is available to evaluate compliance to the regulations.
( ) Abandonment, well is unneeded or cannot be remediated.

Deficiencies: The well monitors perched water from the ANL industrial waste pond in an uncased interval from 160 to 406 feet bls. Although the surface casing is grouted, only the bottom of the 6-inch casing is set in cement. The well is currently dry, but the potential for perched water exists near the well: the borehole was grouted from 20 to 67 feet bls during drilling to seal off water-bearing intervals and partially saturated zones may have existed to about 160 feet bls based on the 1987 geophysical logs. Because the well does not monitor a particular zone but allows potentially contaminated water to migrate down most of the length of the borehole, the well should be remediated. The following minor deficiencies also were noted: the 6-inch casing joint type was not documented and the surface seal extends to a depth of 10 feet instead of the required 18 feet. However, the seal extends 8 feet into the basalt.

Remediation: Although the well is currently dry, it should be grouted so that it will monitor a particular zone and prevent the migration of potentially contaminated water down the borehole if saturated conditions return. One possiblity would be to grout the bottom of the well up to a depth of about 170 feet in order to monitor the zone between 67 and 170 feet bls. This is below the interval sealed off during drilling.

GEOLOGIC LOG

Well ANL-M06

Source: Drilling Log and Generalized Geologic Log

****

Interval (feet below surface)

Begin	End	Description
0	2	Silty Sand to Clayey Silt
2	22	Fractured Gray Basalt
22	34	Dense Basalt
34	43	Fractured Basalt (Water Seepage at 43 ft)
43	50	Dense Basalt (Large Fracture with Water at 48.5 ft)
50	63	Fractured Basalt (Some Water / Void at 54 ft)
63	67	No Data
67	86	Dense Basalt
86	88	Void
88	138	Basalt (No Returns 88-98 and 103-133 ft)
138	149	Highly Fractured Basalt
149	155	Basalt
155	203	Dense Basalt (No Returns)
203	211	Black Basalt with Thin Cinder Zone
211	262	Dense to Very Dense Basalt
262	279	Cinder Zone
279	286	Basalt and Cinders
286	294	Cinder Zone
294	299	Basalt and Cinders

COMPILED BY/ORGANIZATION: F.S. Mocker / GAI Date August 12, 1992

 GEOLGIC LOG Well Name ANL-M06

Source: Drilling Log and Generalized Geology Log

****

Interval (feet below surface)

Begin	End	Description
299	312	Dense Basalt (Vesicular 310-312 ft)
312	325	Black Dense Basalt (Gray-Red 320-321 ft)
325	340	Basalt (Softer)
340	346	Hard Black Basalt
346	352	Basalt (Soft)
352	358	Basalt with Cinders(?) / Cinders at Top
358	363	Basalt
363	370	Black Basalt (Soft)
370	378	Hard Basalt
378	389	Vesicular Basalt / Void at 388 ft
389	407	Basalt (No Returns 389-404 ft)
407	414	Brown Interbed (No Returns)
414	423	Basalt

COMPILED BY/ORGANIZATION: F.S. Mocker / GAI Date August 12, 1992

WellName: ANL–M06

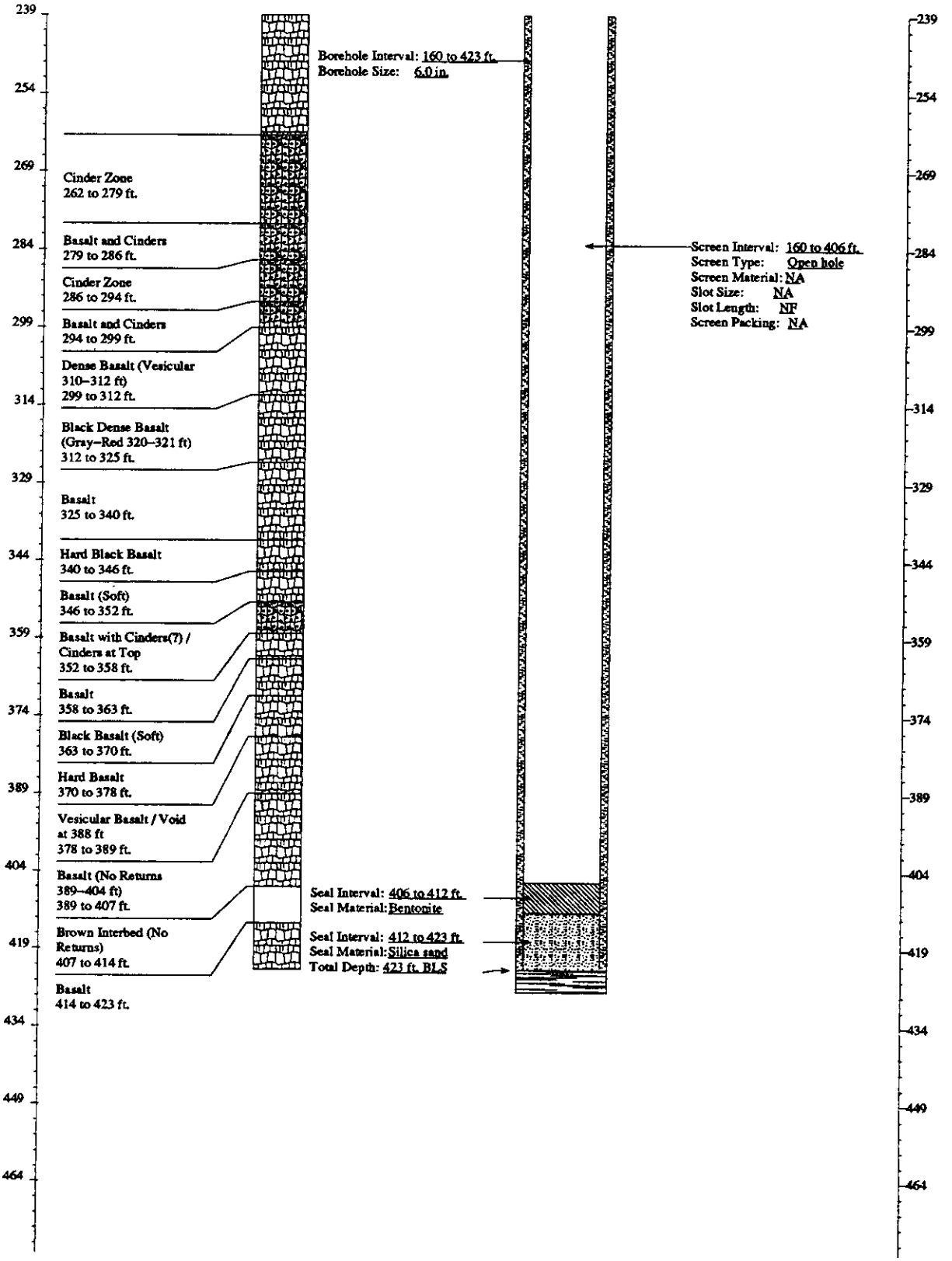
12/15/1993

Facility: ANL
Well Type: Observation
Well Status: Active
Year Drilled: 1987
Total Depth: 423

Easting: 525278.179
Northing: 704084.380
Longitude: 1123938.7698
Latitude: 433551.33273
Completion Depth: 406

Driller: Denning
Geologist: NF
Drilling Method: Air rotary
Drilling Fluid: Air
Land Surface: 5124.32

Water Level: 64.8
Water Level Date: 9/11/87
Water Level Access: NF



CHECKLIST FOR ABANDONED/DESTROYED WELLS AND BORINGS

Location ANL-W Well Name/No. ANL-M07

A. Sources for Well Abandonment

1) What sources indicated that the well was plugged or destroyed:
(X) Comprehensive Well Survey status: Plugged and abandoned.
(X) INEL Well Catalog (field survey by K. Beard)
Field picture shows top of well filled with cement.
(X) Personal communication Chris Martin, ANL-W (Apr. 1993)
( ) Other _

2) Was the well located by field inspection and documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380)
(X) Well was located by field inspection.
( ) Well was not located by field inspection.

B. Abandonment Procedures

1) How was the well abandoned or destroyed:
( ) Backfilled
( ) Buried
(X) Grouted
( ) Other

2) List procedure and amounts of material used to abandon the well:
Not documented

C. Well Casing

1) Does the well contain surface or other well casing:
Yes X No _ Not Documented _
Explanation: The casing is set at 19 feet, 6 feet into the basalt.

2) Was the annular space between the casing and borehole grouted:
Yes _ No _ Not Documented X N/A _

D. Compliance with State Regulations

State of Idaho Reg.3,12,1. Permanently abandoned wells may have the casing removed or left in place and shall be filled with bentonite grout, cement grout, concrete, puddling clay, or other material as required to stop the upward or downward movement of water and prevent the waste and/or contamination of the ground water.

1) Total depth of well 60 ft. Top of basalt 13 ft.

CHECKLIST FOR ABANDONED/DESTROYED WELLS AND BORINGS

Location ANL-W Well Name/No. ANL-M07

2) Was the well properly abandoned in accordance with Idaho State regulations:
Yes X No _ Not Documented _ Not Certain _
Explanation: The well was sealed with cement from the bottom to the ground surface (pers. comm. Chris Martin, ANL-W, Apr. 1993).

3) Are additional abandonment procedures necessary:
Yes _ No X Not Certain _

GEOLOGIC LOG

Well Name ANL-M07

Source: Generalized Geology Log

****

Interval (feet below surface)

Begin	End	Description
0	13	Brown Sandy Silt with Clay
13	20	Fractured Gray Basalt (Water at 17 ft)
20	40	Dense Vesicular Gray Basalt
40	48	Fractured Basalt with Silt Infillings
48	60	Dense Vesicular Black Basalt

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date March 22, 1993

WellName: ANL-M07 Corrections:Set Casing Dia = 9 in (original NF)

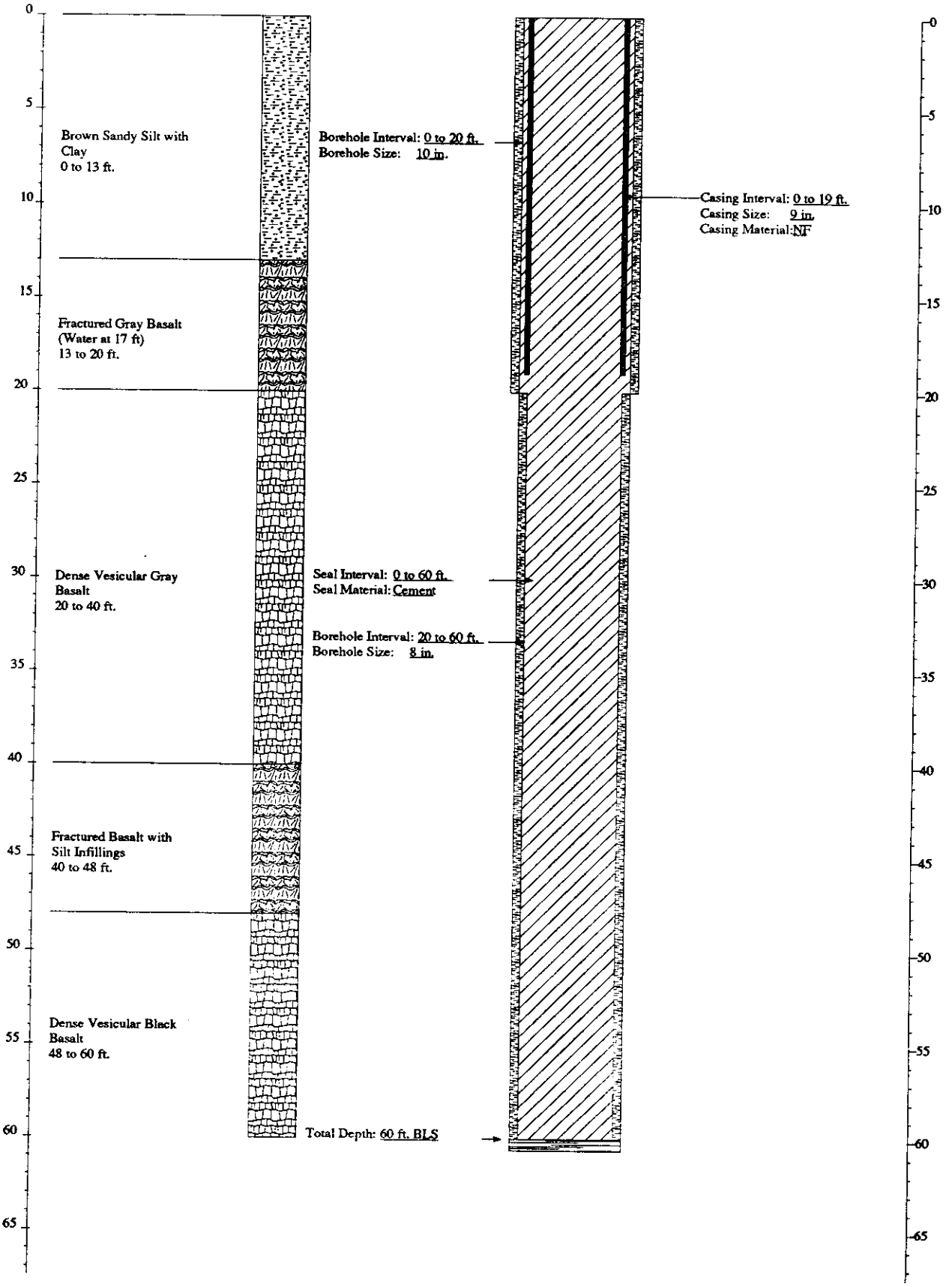
07/30/1993

Facility: ANL
Well Type: NA
Well Status: Abandoned
Year Drilled: 1989
Total Depth: 60

Easting: 369855.00
Northing: 703742.00
Longitude: 1123928.59
Latitude: 433548.08
Completion Depth: NA

Driller: Denning
Geologist: NF
Drilling Method: Air rotary
Drilling Fluid: NF
Land Surface: 5117.4

Water Level: NA
Water Level Date: NA
Water Level Access: NA



INEL COMPREHENSIVE WELL SURVEY

CHECKLIST FOR ABANDONED/DESTROYED WELLS AND BORINGS

Location ANL-W Well Name/No. ANL-M08

A. Sources for Well Abandonment

1) What sources indicated that the well was plugged or destroyed:
(X) Comprehensive Well Survey status: Plugged and abandoned.
(X) INEL Well Catalog (field survey by K. Beard)
Field picture shows top of well filled with cement.
(X) Personal communication Chris Martin, ANL-W, (Apr. 1993)
( ) Other _

2) Was the well located by field inspection and documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380)
(X) Well was located by field inspection.
( ) Well was not located by field inspection.

B. Abandonment Procedures

1) How was the well abandoned or destroyed:
( ) Backfilled
( ) Buried
(X) Grouted
( ) Other

2) List procedure and amounts of material used to abandon the well:_
Not documented

C. Well Casing

1) Does the well contain surface or other well casing:
Yes X No _ Not Documented _
Explanation:The casing is set at 21 feet, 8 feet into the basalt.

2) Was the annular space between the casing and borehole grouted:
Yes _ No _ Not Documented X N/A _

D. Compliance with State Regulations

State of Idaho Reg.3.12.1. Permanently abandoned wells may have the casing removed or left in place and shall be filled with bentonite grout, cement grout, concrete, puddling clay, or other material as required to stop the upward or downward movement of water and prevent the waste and/or contamination of the ground water.

1) Total depth of well 55 ft. Top of basalt 13 ft.

CHECKLIST FOR ABANDONED/DESTROYED WELLS AND BORINGS

Location ANL-W Well Name/No. ANL-M08

2) Was the well properly abandoned in accordance with Idaho State regulations:
Yes X No _ Not Documented _ Not Certain _
Explanation: The well was sealed with cement from the bottom to the ground surface (pers. comm. Chris Martin, ANL-W, Apr. 1993).

3) Are additional abandonment procedures necessary:
Yes _ No X Not Certain _

GEOLOGIC LOG

Well Name ANL-M08

Source: Generalized Geology Log

****

Interval (feet below surface)

Begin	End	Description
0	13	Brown Sandy Silt with Clay
13	17	Fractured Gray Basalt
17	38	Dense Gray Basalt
38	40	Fractured Gray Basalt
40	44	Dense Vesicular Black Basalt
44	54	Tan Silty Sand
54	55	Dense Vesicular Black Basalt

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date March 22, 1993

WellName: ANL-M08

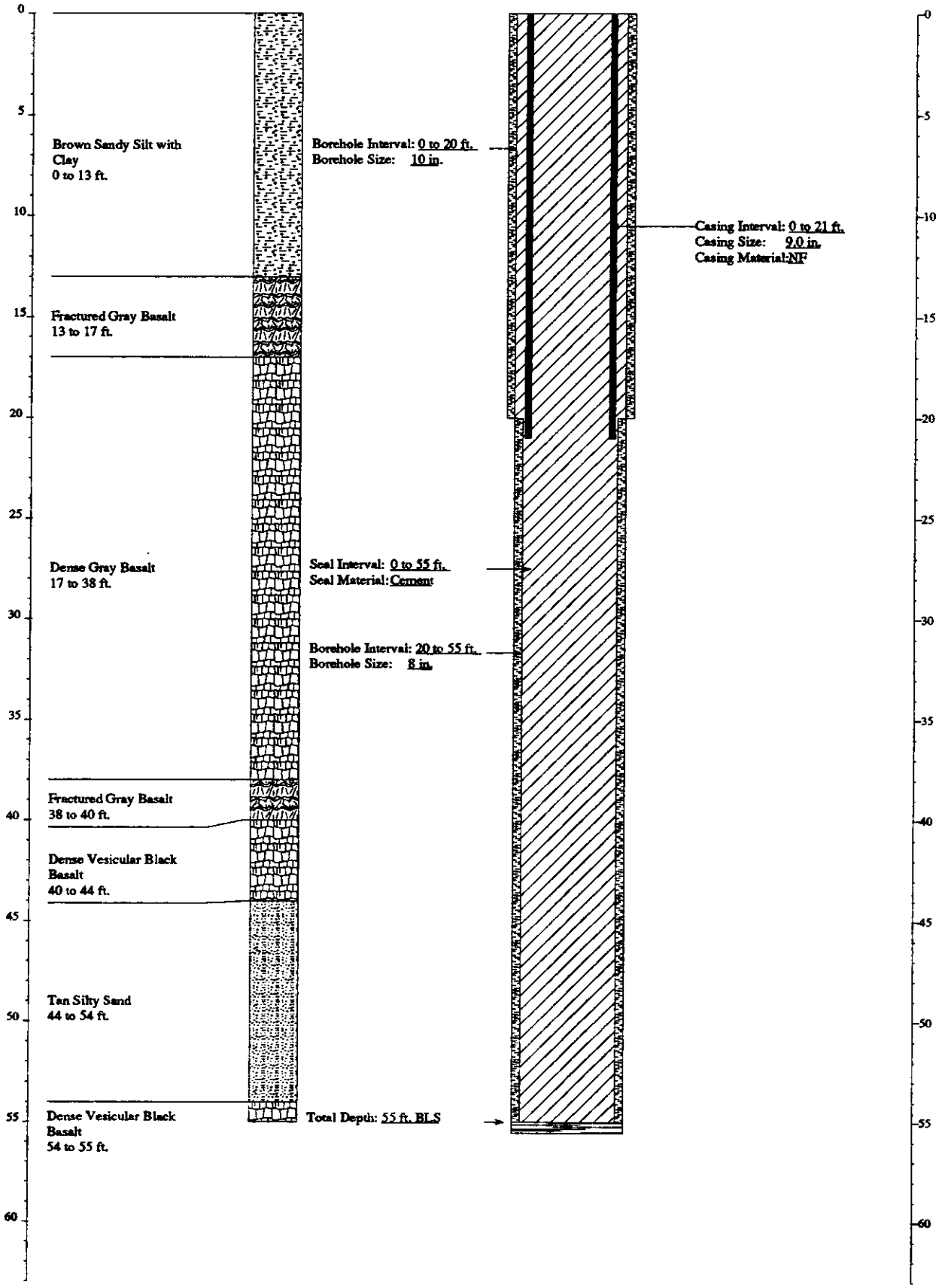
09/02/1993

Facility: ANL
Well Type: NA
Well Status: Abandoned
Year Drilled: 1989
Total Depth: 55

Easting: 369821.40
Northing: 703564.30
Longitude: 1123929.03
Latitude: 433546.33
Completion Depth: NA

Driller: Denning
Geologist: NF
Drilling Method: Air rotary
Drilling Fluid: NF
Land Surface: 5117.8

Water Level: NA
Water Level Date: NA
Water Level Access: NA



INEL COMPREHENSIVE WELL SURVEY

CHECKLIST FOR ABANDONED/DESTROYED WELLS AND BORINGS

Location ANL-W Well Name/No. ANL-M09

A. Sources for Well Abandonment

1) What sources indicated that the well was plugged or destroyed:
(X) Comprehensive Well Survey status: Plugged and abandoned.
(X) INEL Well Catalog (field survey by K. Beard)
Field picture shows top of well filled with cement.
(X) Personal communication Chris Martin, ANL-W (Apr. 1993)
( ) Other _

2) Was the well located by field inspection and documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380)
(X) Well was located by field inspection.
( ) Well was not located by field inspection.

B. Abandonment Procedures

1) How was the well abandoned or destroyed:
( ) Backfilled
( ) Buried
(X) Grouted
( ) Other

2) List procedure and amounts of material used to abandon the well:_
Not documented

C. Well Casing

1) Does the well contain surface or other well casing:
Yes X No _ Not Documented _
Explanation: The 9-inch surface casing was set at 19 feet, 12 feet into the basalt. Also, a 6-inch steel casing was set from 35 to 55 ft.

2) Was the annular space between the casing and borehole grouted:
Yes _ No _ Not Documented X N/A _

D. Compliance with State Regulations

State of Idaho Reg.3,12.1. Permanently abandoned wells may have the casing removed or left in place and shall be filled with bentonite grout, cement grout, concrete, puddling clay, or other material as required to stop the upward or downward movement of water and prevent the waste and/or contamination of the ground water.

1) Total depth of well 55 ft. Top of basalt 7 ft.

CHECKLIST FOR ABANDONED/DESTROYED WELLS AND BORINGS

Location ANL-W Well Name/No. ANL-M09

2) Was the well properly abandoned in accordance with Idaho State regulations:
Yes X No _ Not Documented _ Not Certain _
Explanation: The well was sealed with cement from the bottom to the ground surface (pers. comm. Chris Martin, ANL-W, Apr. 1993).

3) Are additional abandonment procedures necessary:
Yes _ No X Not Certain _

GEOLOGIC LOG

Well Name ANL-M09

Source: Generalized Geology Log

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Interval (feet below surface)

Begin	End	Description
0	7	Tan Sandy Silt
7	12	Fractured Gray Basalt
12	26	Dense Black Basalt
26	27	Fractured Black Basalt
27	37	Dense Black Basalt
37	47	Fractured Vesicular Black Basalt
47	48	Sandy Silt (?)
48	60	Dense Black Basalt

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date March 22, 1993

WellName: ANL–M09

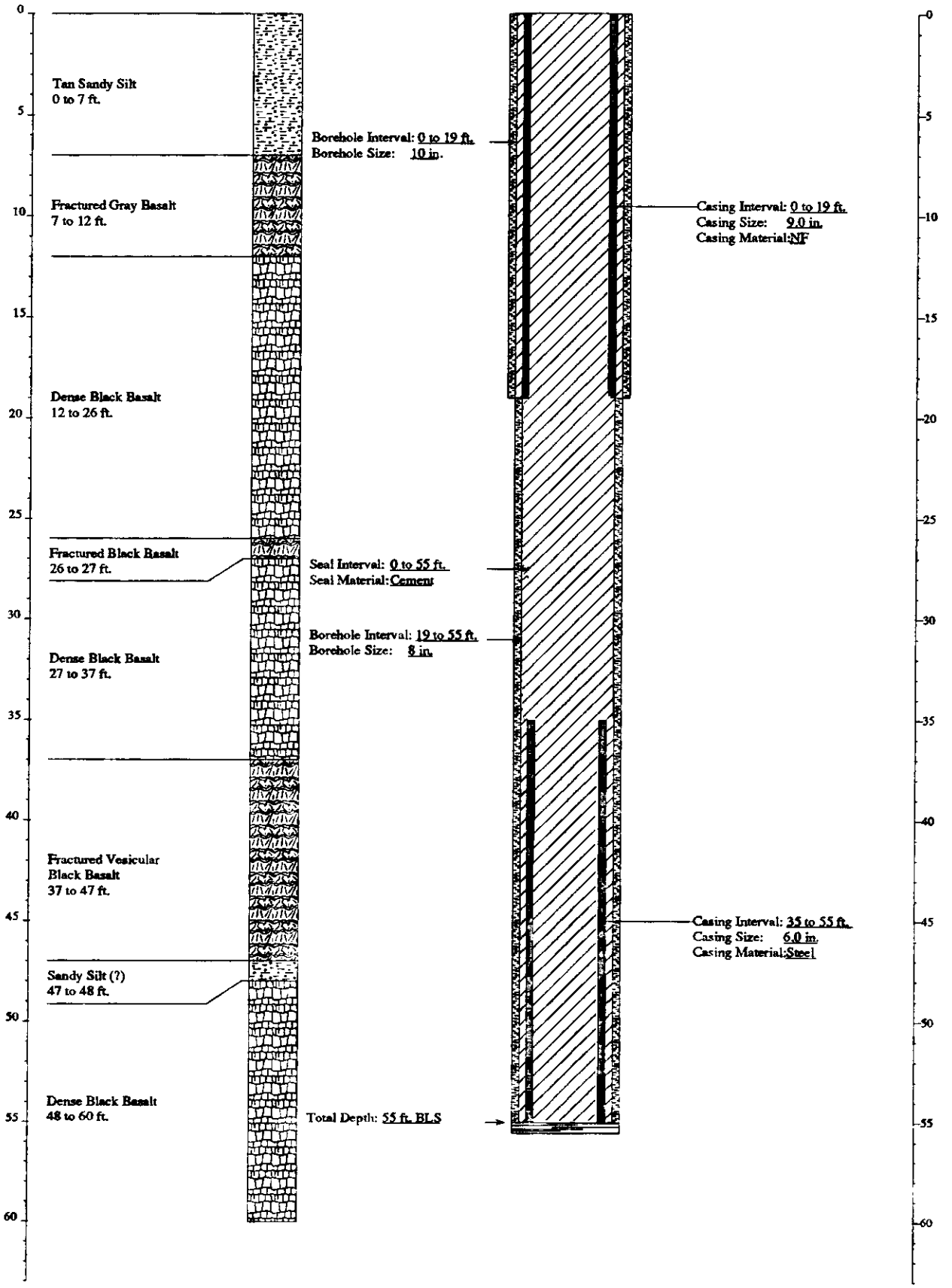
09/11/1993

Facility: ANL
Well Type: NA
Well Status: Abandoned
Year Drilled: 1989
Total Depth: 55

Easting: 369930.90
Northing: 703459.30
Longitude: 1123927.53
Latitude: 433545.30
Completion Depth: NA

Driller: Denning
Geologist: NF
Drilling Method: Air rotary
Drilling Fluid: NF
Land Surface: 5119.2

Water Level: NA
Water Level Date: NA
Water Level Access: NA



CHECKLIST FOR ABANDONED/DESTROYED WELLS AND BORINGS

Location ANL-W Well Name/No. ANL-M10

A. Sources for Well Abandonment

1) What sources indicated that the well was plugged or destroyed:
(X) Comprehensive Well Survey status: Plugged and abandoned.
(X) INEL Well Catalog (field survey by K. Beard)
Field picture shows top of well filled with cement.
(X) Personal communication Chris Martin, ANL-W (Apr. 1993)
( ) Other _

2) Was the well located by field inspection and documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380)
(X) Well was located by field inspection.
( ) Well was not located by field inspection.

B. Abandonment Procedures

1) How was the well abandoned or destroyed:
( ) Backfilled
( ) Buried
(X) Grouted
( ) Other
( ) Not documented

2) List procedure and amounts of material used to abandon the well:_
Not documented

C. Well Casing

1) Does the well contain surface or other well casing:
Yes _ No _ Not Documented X

2) Was the annular space between the casing and borehole grouted:
Yes _ No _ Not Documented X N/A _

D. Compliance with State Regulations

State of Idaho Reg.3.12.1. Permanently abandoned wells may have the casing removed or left in place and shall be filled with bentonite grout, cement grout, concrete, puddling clay, or other material as required to stop the upward or downward movement of water and prevent the waste and/or contamination of the ground water.

1) Total depth of well 46 ft. Top of basalt 11 ft.

CHECKLIST FOR ABANDONED/DESTROYED WELLS AND BORINGS

Location ANL-W Well Name/No. ANL-M10

2) Was the well properly abandoned in accordance with Idaho State regulations:
Yes X No _ Not Documented _ Not Certain _
Explanation: The well was sealed with cement from the bottom to the ground surface (pers. comm. Chris Martin, ANL-W, Apr. 1993).

3) Are additional abandonment procedures necessary:
Yes _ No X Not Certain _

GEOLOGIC LOG

Well Name ANL-M10

Source: Generalized Geology Log

****

Interval (feet below surface)

Begin	End	Description
0	11	Tan Sandy Silt
11	18	Fractured Black Basalt
18	43	Dense Black Basalt
43	46	Brown Silty Sand with Clay (Wet)

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date March 22, 1993

WellName: ANL-M10

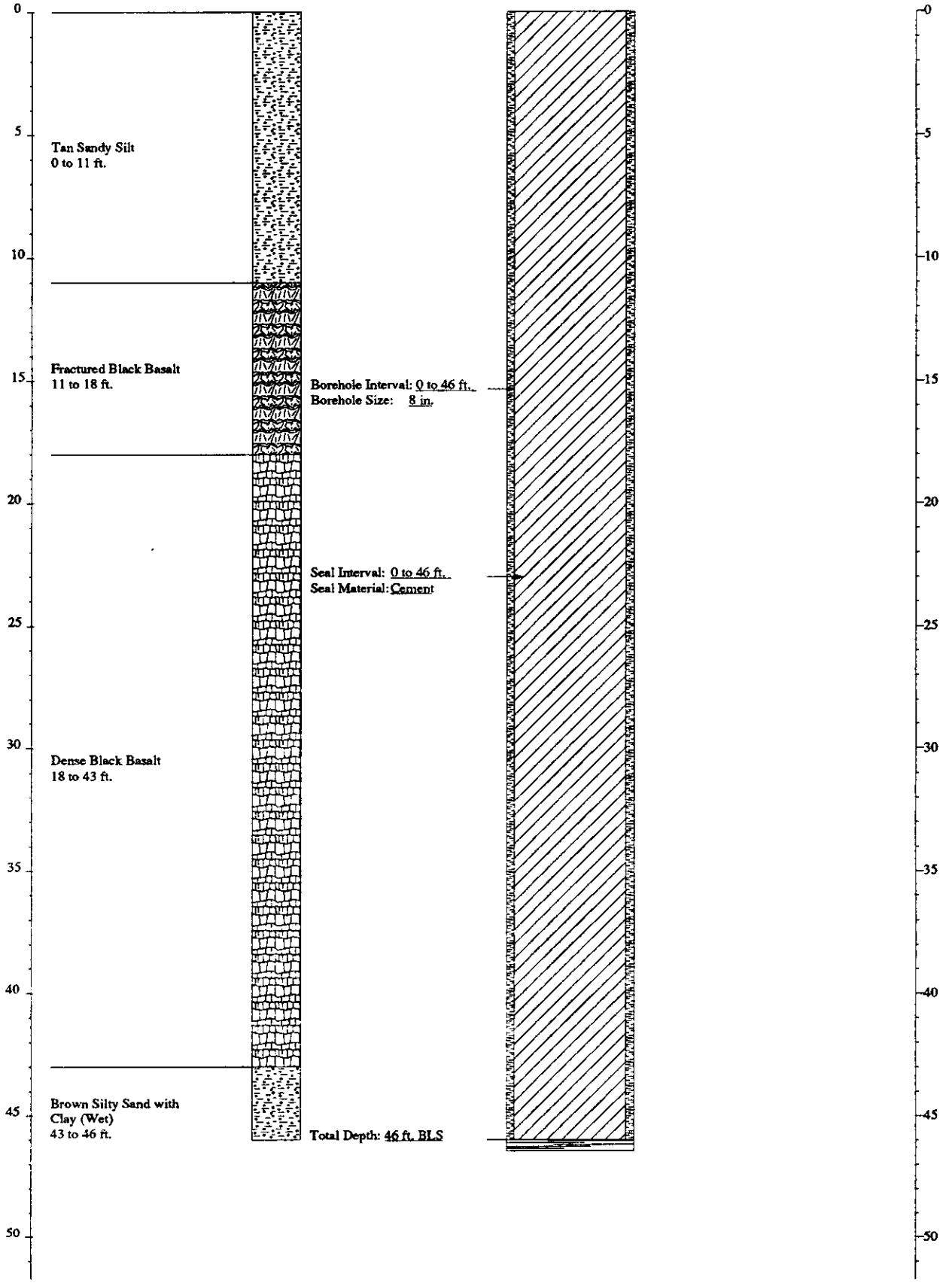
07/07/1993

Facility: ANL
Well Type: NA
Well Status: Abandoned
Year Drilled: 1989
Total Depth: 46

Easting: 369855.70
Northing: 703728.80
Longitude: 1123928.58
Latitude: 433547.95
Completion Depth: NA

Driller: Denning
Geologist: NF
Drilling Method: Air rotary
Drilling Fluid: NF
Land Surface: 5117.6

Water Level: NA
Water Level Date: NA
Water Level Access: NA



FITNESS-FOR-USE CHECKLIST FOR AQUIFER AND PERCHED GROUNDWATER MONITORING/OBSERVATION WELLS

LOCATION: ANL-W Well Name/No. ANL-M11

A. WELL USE

1) Year well was drilled: 1991

2) Current use for well:
( )DOE 5400.1 Monitoring
( )RCRA Monitoring ( )USGS Observation
( )CERCLA Characterization ( )No Documented Use
(X)Other: The well is proposed for future DOE 5400.1 use.

3) Constituents monitored currently: None

4) Water level monitored: (Yes _ No X Insufficient data _)

5) Is the well used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well used or proposed for compliance/detection monitoring:
(Yes X No _) If yes, specify regulating program plan: DOE 5400.1 - INEL Groundwater Monitoring Plan

7) Responsible organization/Contact person: ANL-West / Chris Martin, DOE 5400.1 - EG&G(IRTS) / Jerry Sehlke

B. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells are being resurveyed as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890). The project started in the summer of 1992.

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes X No _) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes X No _)
4) Does the well contain a survey marker: (Yes X No _)
5) If no to 2, 3, or 4 is the well planned for upgrade: (Yes _ No _ N/A X)
6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _)

C. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ Insufficient Data _)
b) Access to measure water levels: (Yes X No _ Insufficient Data _)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes _ No _ N/A X)

b) If well is completed in alluvium, is borehole size at least 2 inches greater than the O.D. of casing: (Yes _ No _ N/A X
Borehole size _ Casing size _)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater:
(Yes X No _ N/A _)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to top of bedrock: (Yes X No _ Borehole size 16 inch Casing size 12 inch I.D.)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below.
State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Carbon Steel (surface casing)	12 I.D.	0 - 18.7	Flush-threaded	42	0.25	Yes
Carbon Steel (1)	8 I.D.	0 - 609.1	Flush-threaded	32	0.25	Yes
Stainless Steel (2)	6 I.D.	588.6 - 654.1	Flush-threaded	N/A	0.28	Yes

(1) 8-inch casing perforated from 231 to 602 ft. BLS for grouting
(2) Wire-wrapped stainless steel screen from 614.1 to 649.1 ft. BLS

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Seal Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
Concrete	0 - 5 (between casings)	N.F.	Yes
Cement Grout	0 - 19.1 (surface seal)	Type I and II Portland Cement with 3 to 5% Sodium Bentonite (139 gallons)	Yes
Cement Grout	5 - 19.1 (between casings) 19.1 - 610.1 (between borehole and casing)	Type I and II Portland Cement with 3 to 5% Sodium Bentonite (32.5 yards)	Yes

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in the alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes X No Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced (provide intervals if there was more than one grouting event): N/A _ Uncertain/not documented _ Explanation for seal emplacement Grout installed with a tremie pipe and by pressure grouting.

State of Idaho Reg. 3,3,1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes X No _) Explanation The well is located approximately 200 feet south of the drainage ditch leading to the Industrial Waste Pond.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X Insufficient data _) Explanation (Qualify data/specify perched intervals if applicable) No perched water was detected when the well was drilled. The well is intended to monitor groundwater at approximately 630 feet.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: Yes, the well is adequately constructed to prevent the downward migration of surface water and perched groundwater.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No X) Is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the monitoring interval: (Yes _ No _ N/A X)

D. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes X No _). (If no, proceed to section E)

The State of Idaho Well Construction Regulations and INEL Best Management Practices that overlap with RCRA guidelines and regulations will not be duplicated in this section.

1) Were the drill rig, equipment, casing and screen steam cleaned before drilling and installation: (Yes X No _ No documentation _) Explanation _

2) Were drilling additives used: (Yes _ No X Uncertain/No documentation _) Drilling Method Air Rotary

3) Are the casing (that portion which is within the sampling interval), the screen, the pump and the pump discharge pipe constructed of nonreactive material which does not affect/interfere with chemical, physical, biological or radiological constituents of interests: (Yes X No _)

	Material
Casing	N/A
Screen	Stainless Steel
Pump	Stainless Steel
Discharge Pipe	Stainless Steel

Explanation The materials are adequate for compliance monitoring.

4) Is the screen factory fabricated: (Yes X No _ No screen _) Type wire-wrapped screen with 0.02-inch slots and end cap

5) Is the monitoring interval adequate to detect the contaminants of concern, i.e. "floaters", "sinkers" or dissolved constituents: (Yes X No _) Explanation The well is adequately constructed to monitor "floaters" and dissolved constituents.

6) Is the monitoring interval greater than 30 feet in length: (Yes X No _) or does the well monitor more than one type of lithology: (Yes _ No X) Monitoring interval Water table (approximately 634 feet bls) to 677.2 feet bls. The well monitors a slightly excessive interval of about 43 feet.

7) Is the filter pack present: (Yes _ No X) If yes, is the filter pack comprised of chemically inert material: (Yes _ No _ Uncertain _ N/A X) Does it extend no more than 2 feet above screen: (Yes _ No _ N/A X)

8) Has the well been developed to ensure turbid free groundwater samples, i.e. <5 NTUs: (Yes _ No _ Not Documented X) and to restore natural hydraulic conductivity of the formation, i.e. stabilization of parameters: (Yes X No _ Not Documented _) Well development type and duration Development consisted of (1) air lifting for 60 minutes, (2) swabbing well for 85 minutes, and (3) removing 1,357 gallons of water from well with dedicated pump.

9) Is the pump intake location documented: (Yes X No _) Depth 642.4 feet

10) Does the pump type collect representative ground-water samples: (Yes X No _ Not Documented _) Type Submersible Explanation EGG-WM-9787 documents that gas piston pumps, submersible pumps and bailers produced nearly equal results for selected volatile organics at TAN.

E. **THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES:** "Report for the EBR II Leach Pit Sampling and Analysis Program and Monitoring Well Installation" (Golder Associates, 1992), EGG-WM-9787

N.F. - Not Found/No Documentation
N/A - Not Applicable

F. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: Proposed for DOE 5400.1/State Regulations and INEL Best Management Practices

(X) Well complies with applicable regulations and is acceptable for intended use.
( ) Well complies with applicable regulations except for minor construction details and is acceptable for intended use.
( ) Well does not meet applicable regulations, a variance should be obtained. If variance not obtained, remediation is required to comply with the regulations.
( ) Well does not meet applicable regulations and intended use, remediation is required.
( ) Well does not meet applicable regulations and should not be used for this purpose.
( ) Insufficient/uncertain data is available to evaluate compliance to the regulations.
( ) Abandonment, well is unneeded or cannot be remediated.

Deficiencies: None, the well complies with state regulations.

Remediation: None

G. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: Proposed for DOE 5400.1/RCRA Guidelines

( ) Well complies with applicable regulations and is acceptable for intended use.
( ) Well complies with applicable regulations except for minor details and is acceptable for intended use.
(X) Well does not meet applicable regulations, a variance should be obtained. If variance not obtained, remediation is required to comply with the regulations.
( ) Well does not meet applicable regulations and intended use, remediation is required.
( ) Well does not meet applicable regulations and should not be used for this purpose.
( ) Insufficient/uncertain data is available to evaluate compliance to the regulations.
( ) Abandonment, well is unneeded or cannot be remediated.

Deficiencies: The well complies with state regulations and INEL best management practices. However, the well is not in strict compliance with RCRA guidelines because the monitoring interval of about 43 feet may be considered slightly excessive. The monitoring interval was extended because the well was drilled in an area where the aquifer is overlain by dense basalt, which creates confined conditions in what is normally a water table aquifer. As a result, the borehole was extended about 20 feet below the screen (25 to 30 feet below the confining layer) and backfilled with sand in order to create a good flow of water into the well. Since the well monitors a discrete zone consisting of one type of lithology, a variance should be requested before the well is used for RCRA purposes.

Remediation: None

GEOLOGIC LOG

Well ANL-M11

Source: Geologist Log (Primarily Based on Cuttings)

****

Interval (feet below surface)

Begin	End	Description
0	11	Clayey Silt
11	34	Basalt
34	36	Silt to Silty Clay
36	115	Basalt
115	116	Interbed
116	260	Basalt
260	262	Interbed
262	397	Basalt
397	398.5	Interbed
398.5	580	Basalt
580	581	Interbed
581	593	Basalt
593	593.5	Interbed
593.5	601.5	Basalt
601.5	603	Interbed
603	603.5	Basalt
603.5	605	Interbed
605	605.2	Basalt
605.2	607.6	Clay
607.6	677.2	Basalt

COMPILED BY/ORGANIZATION: J.M. Sabel / GAI Date August 1992

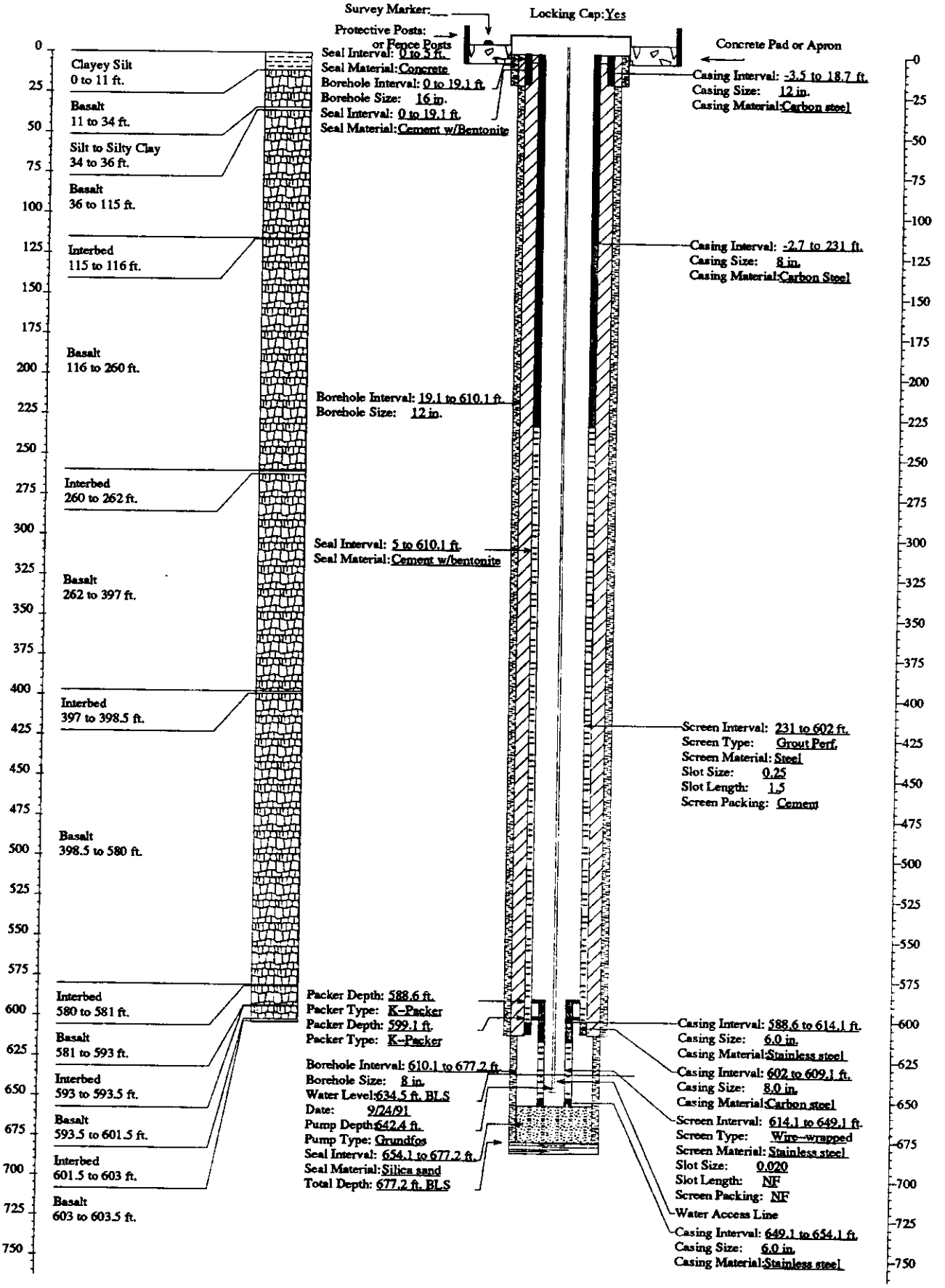
WellName: ANL-M11

Facility: ANL
Well Type: Observation
Well Status: Inactive
Year Drilled: 1991
Total Depth: 677.2

Easting: 525649.880
Northing: 702397.315
Longitude: 1123933.5827
Latitude: 433534.69257
Completion Depth: 677.2

Driller: Hawley Bros.
Geologist: T. Norton
Drilling Method: Air Rotary
Drilling Fluid: NF
Land Surface: 5122.28

03/01/1994
Water Level: 634.5
Water Level Date: 9/24/91
Water Level Access: Line



FITNESS-FOR-USE CHECKLIST FOR AQUIFER AND PERCHED GROUNDWATER MONITORING/OBSERVATION WELLS

LOCATION: ANL-W Well Name/No. ARBOR TEST

A. WELL USE

1) Year well was drilled: 1957

2) Current use for well:
( )DOE 5400.1 Monitoring
( )RCRA Monitoring (X)USGS Observation
( )CERCLA Characterization ( )No Documented Use
( )Other: _

3) Constituents monitored currently: USGS Observation - ^3H, Cl^-, Cr

4) Water level monitored: (Yes X No _ Insufficient data _)

5) Is the well used for USGS observation: (Yes X No _)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well used or proposed for compliance/detection monitoring:
(Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/Contact person: USGS / Larry Mann

B. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells are being resurveyed as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890). The project started in the summer of 1992.

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes _ No X) or Fence posts: (Yes X No _)
3) Concrete pad/apron present: (Yes X No _)
4) Does the well contain a survey marker: (Yes X No _)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No _ N/A X)
6) Based on location of well, is existing or planned surface completion adequate:
(Yes X No _)

C. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS " (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ Insufficient Data _)
b) Access to measure water levels: (Yes X No _ Insufficient Data _)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes _ No _ N/A X)

b) If well is completed in alluvium, is borehole size at least 2 inches greater than the O.D. of casing: (Yes _ No _ N/A X
Borehole size _ Casing size _)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater:
(Yes X No _ N/A _)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to top of bedrock: (Yes X No _ Borehole size 18 inch Casing size 10 inch (I.D. or O.D.?)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Carbon Steel	10 (I.D. or O.D.?)	0 - 790	N.F.	20	N.F.	N.F.

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Fill Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
Clay Backfill	0 - 3	N.F.	N.F.
Gravel	3 - 787	N.F.	N/A
Concrete	787 - 790 (bottom of casing)	N.F.	Yes

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in the alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No X Uncertain/None documented _)

b) If the seal is documented, how was it emplaced (provide intervals if there was more than one grouting event): N/A _ Uncertain/not documented X Explanation for seal emplacement _

State of Idaho Reg. 3,3,1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No X) Explanation The well is located approximately 2100 feet southeast of ANL-West. No significant sources of recharge are located near the well.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No _ Insufficient data _) Explanation (Quality data/specify perched intervals if applicable) There is no evidence of saturated formations in the well above the water table (about 670 feet). Also, no perched water was encountered during drilling at ANL-West in 1991 (see section E), and there is no indication of extensive perched water based on neutron logs (LATA, 1990).

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: No, gravel fills most of the annular space from 3 to 787 feet. However, no evidence was found of perched

groundwater near the well and no surface water bodies are located in the area.

4) Gravel Pack. Does the well contain a gravel pack: (Yes X No _) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No X) Explanation Although the clay backfill from the surface to 3 feet may prevent the migration of surface water into the well, gravel fills most of the annular space from 3 to 787 feet.

D. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X). (If no, proceed to section E)

The State of Idaho Well Construction Regulations and INEL Best Management Practices that overlap with RCRA guidelines and regulations will not be duplicated in this section.

1) Were the drill rig, equipment, casing and screen steam cleaned before drilling and installation: (Yes _ No _ No documentation _) Explanation _

2) Were drilling additives used: (Yes _ No _ Uncertain/No documentation _) Drilling Method _ Additive(s)/Quantity _

3) Are the casing (that portion which is within the sampling interval), the screen, the pump and the pump discharge pipe constructed of nonreactive material which does not affect/interfere with chemical, physical, biological or radiological constituents of interests: (Yes _ No _)

Material

Casing _____

Screen _____

Pump _____

Discharge Pipe _____

Explanation _____

4) Is the screen factory fabricated: (Yes _ No _ No screen _) Type _

5) Is the monitoring interval adequate to detect the contaminants of concern, i.e. "floaters", "sinkers" or dissolved constituents: (Yes _ No _) Explanation _

6) Is the monitoring interval greater than 30 feet in length: (Yes _ No _)or does the well monitor more than one type of lithology: (Yes _ No _) Monitoring interval _

7) Is the filter pack present: (Yes _ No _) If yes, is the filter pack comprised of chemically inert material: (Yes _ No _ Uncertain _ N/A _) Does it extend no more than 2 feet above screen: (Yes _ No _ N/A_) Filter pack type _ Filter pack interval _

8) Has the well been developed to ensure turbid free groundwater samples, i.e. <5 NTUs: (Yes _ No _ Not Documented _) and to restore the natural hydraulic conductivity of the formation, i.e. stabilization of parameters: (Yes _ No _ Not Documented _) Well development type and duration _

9) Is the pump intake location documented: (Yes _ No _) Depth _

10) Does the pump type collect representative ground-water samples: (Yes _ No _ Not Documented _) Type_ Explanation _

E. **THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES:** "Report for the EBR-II-Leach Pit Sampling and Analysis Program and Monitoring Well Installation" (Golder Associates, 1992); "Monitoring, Analysis, and Test Plan for EBR-II Leach Pit for ANL-West" (LATA, 1990)

N.F. - Not Found/No Documentation
N/A - Not Applicable

F. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: USGS Observation/State Regulations and INEL Best Management Practices

( ) Well complies with applicable regulations and is acceptable for intended use.
( ) Well complies with applicable regulations except for minor construction details and is acceptable for intended use.
(X) Well does not meet applicable regulations, a variance should be obtained. If variance not obtained, remediation is required to comply with the regulations.
( ) Well does not meet applicable regulations and intended use, remediation is required.
( ) Well does not meet applicable regulations and should not be used for this purpose.
( ) Insufficient/uncertain data is available to evaluate compliance to the regulations.
( ) Abandonment, well is unneeded or cannot be remediated.

Deficiencies: The well contains a gravel pack from 3 feet bls to the Snake River Plain aquifer. No surface casing is installed in the well and the top of the gravel is only sealed with 3 feet of clay backfill. The well does not comply with state regulations which require that at least an 18-foot surface casing or an 18-foot seal be installed above the gravel. However, the well is about 2000 feet from ANL-West and no indication has been found of extensive perched water at the facility (see section C.3.d.). Therefore, a variance should be requested for the lack of the required surface seal. Also, the casing thickness and joint type were not documented, which are minor deficiencies.

Remediation: None. However, if the perched water at ANL-West becomes more extensive, the casing should be perforated and the upper part of the gravel pack grouted. Otherwise, consideration should be given to abandoning the well at that time.

 GEOLOGIC LOG Well Name ARBOR TEST

Source: Drillers Log

****

Interval (feet below surface)

Begin	End	Description
0	18	Red and Black Basalt
18	39	Cinders
39	62	Red and Black Basalt
62	67	Yellow Clay
67	70	Cinders
70	89	Hard Black Basalt
89	90	No Sample
90	127	Red and Black Basalt
127	129	Cinders
129	150	Red and Black Basalt
150	155	Brown Clay
155	175	Red and Black Basalt
175	190	Soft Red and Black Basalt
190	205	Red and Black Basalt
205	229	Red and Black Cinders
229	265	Hard Basalt
265	270	Black Basalt
270	272	Red Clay
272	340	Red and Black Basalt
340	355	Cinders
355	410	Red and Black Basalt

COMPILED BY/ORGANIZATION: J.V. Wozniewicz / GAI Date 8 September, 1992

 GEOLOGIC LOG Well Name ARBOR TEST

Source: Driller's Log

****

Interval (feet below surface)

Begin	End	Description
410	415	Very Hard Gray Basalt
415	420	Rusty Clay
420	435	Red and Black Basalt
435	440	Cinders
440	450	Soft Red and Black Basalt
450	460	Cinders
460	480	Black Basalt
480	490	Red and Black Cinders with Clay
490	495	Hard Red and Black Basalt
495	555	Red and Black Basalt
555	562	Black Cinders
562	730	Hard Black Basalt
730	735	Black Basalt with Orange Chalk
735	740	Soft Black Basalt
740	750	Red and Black Basalt
750	755	Red and Black Cinders
755	780	Black Basalt
780	795.5	Red and Black Cinders

COMPILED BY/ORGANIZATION: J. V. Wozniewicz / GAI Date September 8, 1992

A. WELL USE

1) Year well was drilled: 1958

2) Current use for Well:
(X) Potable water production well
( ) Raw water production well

3) Well is: (X) Active ( ) Inactive

4) Program Plan: Sample Plan for ANL-W Production Well Water Analysis - Priority Pollutants.

5) Responsible Organization/Contact Person: ANL-W, Paul Mikolaycik/Chris Martin

6) Has a sanitary survey been performed on the drinking water system by the Idaho Department of Health and Welfare: (Yes X No _ Insufficient Data NA _) Date performed 12/6/90 Deficiencies reported relevant to scope of Fitness for Use Checklist / Corrective actions taken: At the time the sanitary survey was conducted the well was not plumbed to be pumped to waste and the well was not equipped with a casing vent. A casing vent was installed prior to 4/29/91 and the well is scheduled to be modified to pump to waste during the 1993 fiscal year.

The following evaluation pertains to well construction and does not address the design of the distribution system outside of well house or water quality issues.

B. WELL MUST COMPLY WITH IDAHO DEPARTMENT OF HEALTH AND WELFARE RULES AND REGULATIONS, TITLE 1, CHAPTER 8, "IDAHO REGULATIONS FOR PUBLIC DRINKING WATER SYSTEMS", SPECIFICALLY SUBSECTION 01.08550 "STANDARDS FOR PUBLIC DRINKING WATER SYSTEMS." WELL MUST ALSO COMPLY WITH IDAHO DEPARTMENT OF WATER RESOURCES "RULES AND REGULATIONS WELL CONSTRUCTION STANDARDS" (JANUARY 1989). THESE CRITERIA WILL BE EVALUATED IN SECTION C.

In addition, the Department of Health and Welfare has adopted "Recommended Standards for Water Works" (Albany, New York, 1992). The criteria from this report not included in "State Regulations for Well Construction" will be discussed in Section D.

1) Well shall not be located in a pit. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _)

2) Is a well house provided for this well: (Yes X No _ Insufficient Data _ N/A _) (If no, proceed to section 3)

   a) Well house shall be provided with a locking door. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

   b) Well house shall be protected from flooding and adequately drained. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _) Explanation: The well house itself is slightly elevated and the ANL-W facility's drainage system provides additional protection

   c) Floor drains shall not be connected to sewers, storm drains, or any other source of contamination. Is this criterion met: (Yes _ No _ Insufficient Data _ N/A X) Explanation: There are no floor drains in the EBR-II-1 well house, although there is a concrete sump for the service pumps located next to the well.

   d) Sumps for well house floor drains shall not be within 30 feet of the well. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: The discharge for the sump is approximately 30 to 35 ft. away.

   e) Well house shall not be used to store toxic or hazardous materials. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

3) Is the well constructed with a pitless adapter or pitless unit: (Yes _ No X Insufficient Data _ N/A _) (If no, proceed to Section 4)

   a) The unit shall be the type approved by the National Sanitation Division or Pitless Adaptor Division of the Water Systems Council. Is this criteria met: (Yes _ No _ Insufficient Data _ N/A _) Explanation: _

   b) The unit shall be designed to be watertight including the well cap and casing extension. Is this criterion met: (Yes _ No _ Insufficient Data _ N/A _) Explanation: _

c) The unit shall be tested for leaks prior to being put into service. Is this criterion met: (Yes _ No _ Insufficient Data _ N/A _) Explanation: _

4) Well must not be located within 50 or 100 feet of any potential source of contamination and no closer to specific sources of contamination than set forth below.

a) The well must not be within 50 feet of sewer lines. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

b) The well must not be within 50 feet of canals, streams, ditches, lakes, ponds and tanks used to store non-potable substances. Is this criterion met: (Yes _ No X Insufficient Data _ N/A _) Explanation: There are suspected hot waste lines and a storm drainage culvert within a 50 ft. radius of the well.

c) The well must not be within 100 feet of a drainfield or a drainfield replacement area. Is this criterion met:
(Yes X No _ Insufficient Data _ N/A _) Explanation:N.R.

d) Is the well within 50 feet of contaminated perched water bodies:
(Yes _ No X Insufficient Data _ N/A _) Explanation: The only known perched water at ANL-W is body of water associated with industrial waste pond which is over 600 ft. away

5) Well casing shall extend a minimum of 12 inches above the ground surface and 6 inches above the well house floor. Are these criteria met:
(Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

6) Well shall be vented with the open end screened and terminated downward at least 18 inches above the well house floor or ground surface. Are these criteria met: (Yes _ No X Insufficient Data _ N/A _) Explanation: There is a casing vent installed that is screened and terminated downward however it is only 6 to 8 inches from the floor.

7) Well shall be equipped with the necessary valves and appurtenances to allow the well to be pumped to waste. Is this criterion met: (Yes _ No X Insufficient Data _ N/A _) Explanation: The well is scheduled to be modified to allow it to be pumped to waste in the 1993 fiscal year.

8) A flow meter and sample tap shall be installed on discharge line. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

9) A pressure gauge shall be provided at all installations. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

10) Well shall be cased and sealed in such a manner that surface water can not enter the well and a watertight seal shall be provided at the top of the casing. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

C. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "RULES AND REGULATIONS WELL CONSTRUCTION STANDARDS" (1989)

1) Surface Completion

State of Idaho Reg. 3.2.1. The top of the casing shall be completely covered with a 1/4-inch thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3.11. The well shall be equipped with an access port which has a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ Insufficient Data _)
b) Access to measure water levels: (Yes X No _ Insufficient Data _)

2) Casing

State of Idaho Reg. 3.3.4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

a) If the well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes X No _ Insufficient Data _ N/A _) Explanation: The alluvium/basalt interface is at approximately 5 ft. bls., and 18-inch casing is installed from 0 ft. through 747 ft. bls.

b) If the well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to top of bedrock: (Yes X No _ Borehole size 24 inches Casing size 18 inches)

c) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

FITNESS-FOR-USE CHECKLIST POTABLE WATER/PRODUCTION WELL

LOCATION: ANL (Building 754) **PAGE 5 of 9** **Well Name/No. EBR-II #1**

State of Idaho 3.2.1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-coupled joints which shall be watertight or be approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3.2.2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480 which is a combination of Idaho State regulations for casing less than 6 inches in diameter and "Recommended Standards for Water Works" (1992) for casings greater than 26 inches in diameter.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 I.D.	6.625	.280
8	8.628	.322
10 I.D.	0.750	.365
12	12.750	.375
14	14.000	.375
16	16.000	.375
18	18.000	.375
20	20.000	.375
22	22.000	.500
24	24.000	.500
26	26.000	.500
28	28.000	.500
30	30.000	.500
32	32.000	.500
34	34.000	.500

Casing Type	Casing Diameter (inches)	Casing Interval (feet bls)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/State Regs. on Casing Thickness
Steel [1]	18	0-747	N.F.	N.F.	0.312	No
[1] Casing perforated from 645 to 745 feet bls.						

3) Seal

State of Idaho Reg. 3.3.1. and 3.3.2.1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface water.

Annular Fill Material	Interval (feet bls)	Mixture/Volumes	Material Approved by State of Idaho Regs.
Gravel	0 - 3	N.F.	No
Screened Dirt	3 - N.F.	N.F.	No
Cement	N.F.	5 sacks	Yes
Gravel	N.F. - 412	30 yds^3	No
Gravel	N.F. - 747	N.F.	N/A

a) Does the surface seal extend at a minimum from ground surface to the top of bedrock (wells completed in bedrock): (Yes _ No _ Insufficient Data X N/A _) Explanation: The available information contained in the CWS file was incomplete and non-conclusive, but did indicate that the well was constructed with a gravel pack, a gravel pack (cement) seal and the annular space was backfilled with dirt.

b) If the seal is documented, how was it emplaced (provide intervals if there was more than one grouting event): (Yes _ No X Insufficient Data _ N/A _) Explanation: The available information on a surface seal is incomplete (See C.3.a.) but it appears that the annular space was backfilled with dirt, which if correct, does not constitute an adequate seal.

State of Idaho Reg. 3.3.1. The casing seal is to prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams, spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No X Insufficient Data _ N/A _) Explanation: None of the hydrologic features mentioned above are in close proximity to this well. The industrial waste pond and the ditch associated with it are the most prominent hydrologic feature at ANL-W and they are over 1500 ft. away.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X Insufficient Data _ N/A _) Explanation: (Qualify data/specify perched intervals if applicable) The only known perched water body at ANL-W is a small perched zone associated with the industrial waste pond which is over 1500 ft. away from this well.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes _ No X Insufficient Data _ N/A _) Explanation: If, as the available information indicates (see C,3,a), the annular space was backfilled with dirt, the casing would not adequately be sealed to prevent the movement of groundwater within the annular space.

4) Gravel Pack. Does the well contain a gravel pack: (Yes X No _) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ Insufficient Data X N/A _) Explanation: The available information (See C,3,a.) eludes to the fact that a gravel pack was installed and that a cement gravel pack seal was placed on top of it. Therefore, it is probable that an adequate seal was emplaced over a gravel pack and should prevent groundwater from entering the gravel pack through the annular space from above.

D. WELL MUST COMPLY WITH "RECOMMENDED STANDARDS FOR WATER WORKS" (1992), A REPORT OF THE COMMITTEE OF THE GREAT LAKES-UPPER MISSISSIPPI RIVER BOARD OF STATE SANITARY ENGINEERS.

1) Does the well contain a packer that is in contact with the groundwater supply interval: (Yes _ No _ Insufficient Data X N/A _). If yes, is the packer comprised of materials that are toxic, will impair taste or odor, or facilitate bacterial contamination of the well water: (Yes _ No _ Packer Type _ N/A X)

2) Screen

a) Does the well contain perforated casing or a screen: (Yes X No Insufficient Data _ N/A _) If yes, the perforated screen or casing must be installed so that the production water level remains above it under operating conditions. The following determination was made from the

available production water level data which will vary with changes in the static water levels (water table elevation); therefore, the following determination may not be valid under all conditions. Is the criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: The reported production water level is approximately 635 ft. bls., the perforated casing is installed starting at 645 ft. bls., approximately 10 ft. below the production water level.

b) Is the perforated casing or screen constructed of material resistant to damage by chemical action from the groundwater or cleaning operations: Material Type Steel Explanation: Steel is an acceptable well construction material for casing or screen in a non-acidic environment such as the Snake River Plain aquifer, as is demonstrated in EG&G report EGG-ER-8496.

3) If the casing is constructed of nonferrous material, it must be resistant to the corrosiveness of the water. Is this criterion met:
(Yes _ No _ Insufficient Data _ N/A X)

4) Was the well adequately developed to remove native silts and clays, drilling mud or the finer fraction of the gravel pack: (Yes X No _ Insufficient Data N/A _) Explanation: The well was adequately developed while conducting a two day pump test starting on October 2nd and continuing through October 4th, 1958

E. **THE PRIMARY SOURCE FOR THE WELL EVALUATION IS THE IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY. OTHER SOURCES:** Wood, T. R., L. C. Hull and M. H. Doornbos, "Groundwater Monitoring Plan and Interim Status Report for Central Facilities Landfill II", EEG-ER-8496, EG&G April 1989. Golder Associates Inc. "Draft Argonne National Laboratory - West Groundwater Monitoring Program, Section 3.4, 3.5, and 3.6,", 1992. Idaho Department of Health and Welfare - Department of Environmental Quality Drinking Water Supply Report ANL-W, 12/9/1990. ANL-W letter, G. C. Marshall to E. J. Hughes "Idaho Water Quality Bureau Action Items", April, 29, 1991. ANL-W letter from C. Martin to T. Norton "Transmittal of well information" 2/8/93

N.F. Not Found
N/A Not Applicable
N.R. Not Required

F. WELL FITNESS DETERMINATION

Intended use: PRODUCTION/POTABLE WELL

( ) Well is acceptable for intended use.
(X) Well is acceptable for intended use if a variance is granted.
( ) Maintenance required to continue intended use.
(X) Remediation required to continue intended use.
( ) Decommission, well is unneeded or cannot be remediated.

DEFICIENCIES: The following items are not in compliance with Idaho State regulations or are not documented in the records. The well can not be pumped to waste and there are "suspected" (radioactive) waste lines and a storm drain culvert within 50 ft. of the well. The casing vent is only 6 to 8 inches above the well house floor. The thickness of the 18 inch casing is not adequate and the type of casing joint were not found. The annulus was not sealed, but backfilled with dirt which is not an approved seal and a variance should be obtained.

REMEDIATION: The well should be modified to pump to waste, which is already scheduled to be done in fiscal 1993. The "suspected" (radioactive) waste lines should be verified and if present, moved to a distance greater than 50 ft. from the well. Since the well is not located in proximity to any of the hydrologic features mentioned in C,3,d, and is located a sufficient distance from the ANL-W industrial waste pond, a casing seal should not be considered essential and a variance requested.

 GEOLOGIC LOG Well Name EBR-II #1

Source: Driller's Log and Sample Log

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Interval (feet below surface)

Begin	End	Description
0	5	Silt and Clay
5	16	Basalt and Clay
16	35	Gray Basalt
35	40	Cinders
40	60	Basalt
60	65	Cinders
65	400	Basalt
400	410	Basalt with Olivine
410	460	Basalt
460	480	Basalt
480	505	No Sample
505	565	Basalt
565	580	No Sample
580	600	Yellowish Clay
600	615	Basalt
615	620	Basalt with Olivine
620	634	Basalt
634	640	Basalt with Silt
640	675	Basalt

COMPILED BY/ORGANIZATION: T. Norton / GAI Date 2/11/93

GEOLOGIC LOG

Well Name EBR-II #1

Source: Driller's Log and Sample Log

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Interval (feet below surface)

Begin	End	Description
675	685	Basalt with Calcite
685	690	Basalt
690	715	Basalt and Cinders
715	730	Black Basalt
730	747	No Data

COMPILED BY/ORGANIZATION: T. Norton / GAI Date 2/11/93

WellName: EBR–II #1

Facility: ANL
Well Type: Potable Water
Well Status: Active
Year Drilled: 1958
Total Depth: 747

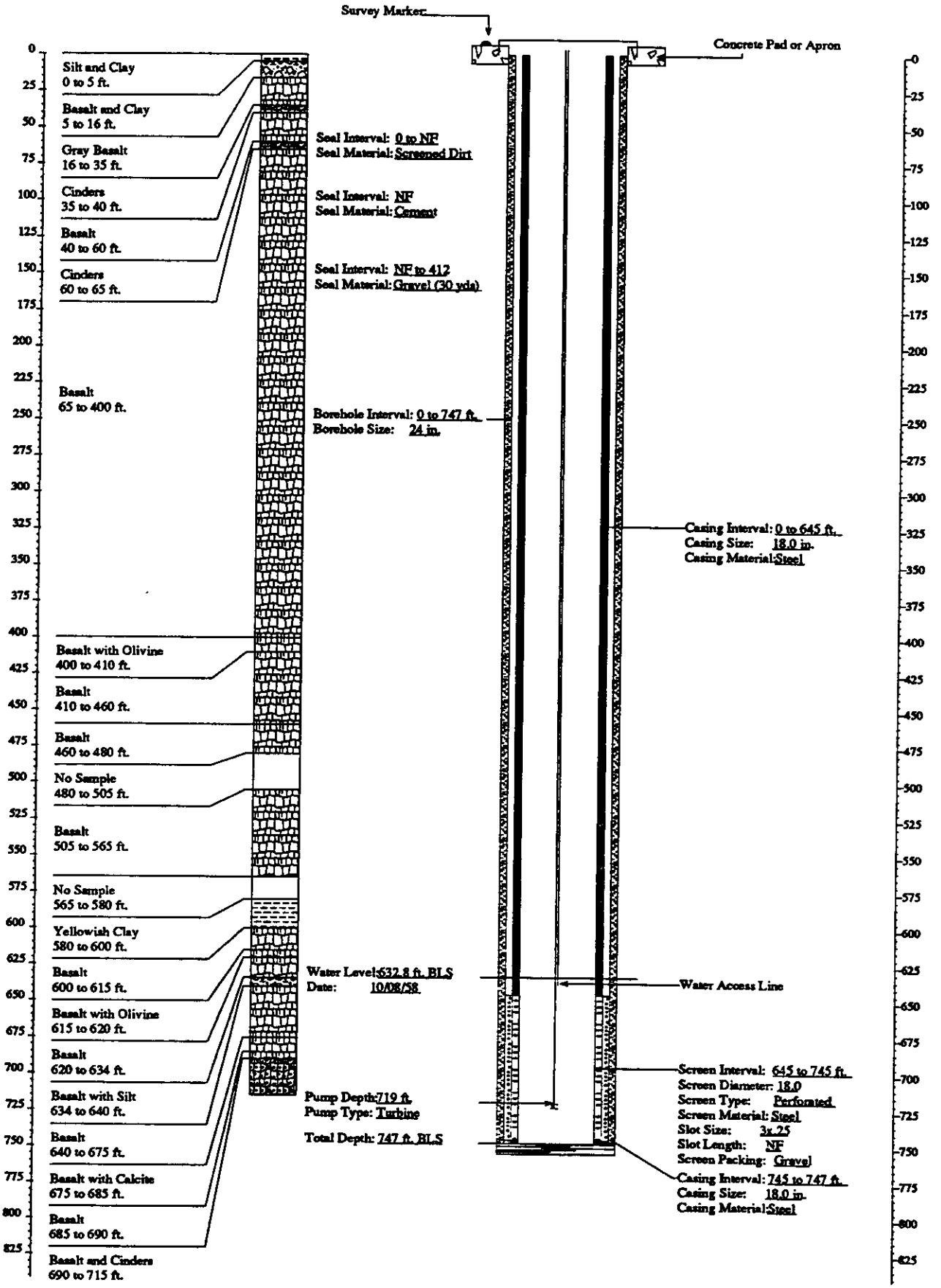
Corrections: WELL IS LOCATED IN A WELL HOUSE

Easting: 370604.852
Northing: 703364.041
Longitude: 1123918.36904
Latitude: 433544.39344
Completion Depth: 745

Driller: Cushman/Johnson
Geologist: NF
Drilling Method: Cable tooled
Drilling Fluid: NF
Land Surface: 5121.228

06/29/1994

Water Level: 632.8
Water Level Date: 10/08/58
Water Level Access: line



FITNESS-FOR-USE CHECKLIST POTABLE WATER/PRODUCTION WELL

LOCATION: ANL (Building 756) Well Name/No. EBR-II #2

A. WELL USE

1) Year well was drilled: 1959

2) Current use for well:
(X) Potable water production well
( ) Raw water production well

3) Well is: (X) Active ( ) Inactive

4) Program Plan: _

5) Responsible Organization/Contact Person: ANL-W Paul Mikolaycik/Chris Martin

6) Has a sanitary survey been performed on the drinking water system by the Idaho Department of Health and Welfare: (Yes X No _ Insufficient Data NA _) Date performed 12/6/90 Deficiencies reported relevant to scope of Fitness for Use Checklist/ Corrective actions taken: At the time the sanitary survey was conducted the well was not plumbed to be pumped to waste and the well was not equipped with a casing vent. A casing vent was installed prior to April 29, 1991 and the well is scheduled to be modified to pump to waste during the 1993 fiscal year.

The following evaluation pertains to well construction and does not address the design of the distribution system outside of well house or water quality issues.

B. WELL MUST COMPLY WITH IDAHO DEPARTMENT OF HEALTH AND WELFARE RULES AND REGULATIONS, TITLE 1, CHAPTER 8, "IDAHO REGULATIONS FOR PUBLIC DRINKING WATER SYSTEMS", SPECIFICALLY SUBSECTION 01.08550 "STANDARDS FOR PUBLIC DRINKING WATER SYSTEMS." WELL MUST ALSO COMPLY WITH IDAHO DEPARTMENT OF WATER RESOURCES "RULES AND REGULATIONS WELL CONSTRUCTION STANDARDS" (JANUARY 1989). THESE CRITERIA WILL BE EVALUATED IN SECTION C.

In addition, the Department of Health and Welfare has adopted "Recommended Standards for Water Works" (Albany, New York, 1992). The criteria from this report not included in "State Regulations for Well Construction" will be discussed in Section D.

1) Well shall not be located in a pit. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _)

2) Is a well house provided for this well: (Yes X No _ Insufficient Data _ N/A _) (If no, proceed to section 3)

   a) Well house shall be provided with a locking door. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

   b) Well house shall be protected from flooding and adequately drained. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _) Explanation: The well house itself is slightly elevated and the ANL-W facility's drainage system provides additional protection.

   c) Floor drains shall not be connected to sewers, storm drains, or any other source of contamination. Is this criterion met: (Yes _ No _ Insufficient Data _ N/A X) Explanation: There are no floor drains in the EBR-II-2 well house.

   d) Sumps for well house floor drains shall not be within 30 feet of the well. Is this criterion met: (Yes _ No _ Insufficient Data _ N/A X) Explanation:_

   e) Well house shall not be used to store toxic or hazardous materials. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

3) Is the well constructed with a pitless adapter or pitless unit: (Yes _ No X Insufficient Data _ N/A _) (If no, proceed to Section 4)

   a) The unit shall be the type approved by the National Sanitation Division or Pitless Adaptor Division of the Water Systems Council. Is this criteria met: (Yes _ No _ Insufficient Data _ N/A _) Explanation: _

   b) The unit shall be designed to be watertight including the well cap and casing extension. Is this criterion met: (Yes _ No _ Insufficient Data _ N/A _) Explanation: _

   c) The unit shall be tested for leaks prior to being put into service. Is this criterion met: (Yes _ No _ Insufficient Data _ N/A _) Explanation: _

4) Well must not be located within 50 or 100 feet of any potential source of contamination and no closer to specific sources of contamination than set forth below.

   a) The well must not be within 50 feet of sewer lines. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

   b) The well must not be within 50 feet of canals, streams, ditches, lakes, ponds and tanks used to store non-potable substances. Is this criterion met: (Yes _ No X Insufficient Data _ N/A _) Explanation: There is a drainage ditch located within approximately 30 ft. south and southeast of the well.

   c) The well must not be within 100 feet of a drainfield or a drainfield replacement area. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

   d) Is the well within 50 feet of contaminated perched water bodies: (Yes _ No X Insufficient Data _ N/A _) Explanation: The only known perched water at ANL-W is a small zone of water associated with industrial waste pond which is over 600 ft. away.

5) Well casing shall extend a minimum of 12 inches above the ground surface and 6 inches above the well house floor. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

6) Well shall be vented with the open end screened and terminated downward at least 18 inches above the well house floor or ground surface. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

7) Well shall be equipped with the necessary valves and appurtenances to allow the well to be pumped to waste. Is this criterion met: (Yes _ No X Insufficient Data _ N/A _) Explanation: The well is scheduled to be modified to allow it to be pumped to waste in the 1993 fiscal year.

8) A flow meter and sample tap shall be installed on discharge line. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

9) A pressure gauge shall be provided at all installations. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

10) Well shall be cased and sealed in such a manner that surface water can not enter the well and a watertight seal shall be provided at the top of the casing. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _)
Explanation: N.R.

C. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "RULES AND REGULATIONS WELL CONSTRUCTION STANDARDS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3.11. The well shall be equipped with an access port which has a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ Insufficient Data _)
b) Access to measure water levels: (Yes X No _ Insufficient Data _)

2) Casing

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

a) If the well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes X No _ Insufficient Data _ N/A _) Explanation: The alluvium/basalt interface is at approximately 10 ft. bls., and 18-inch casing is installed from 2 ft. als. through 653 ft. bls.

b) If the well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to top of bedrock: (Yes X No _ Borehole size 26 inches Casing size 18 inches)

c) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-coupled joints which shall be watertight or be approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480 which is a combination of Idaho State regulations for casing less than 6 inches in diameter and "Recommended Standards for Water Works" (1992) for casings greater than 26 inches in diameter.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 I.D.	6.625	.280
8	8.628	.322
10 I.D.	0.750	.365
12	12.750	.375
14	14.000	.375
16	16.000	.375
18	18.000	.375
20	20.000	.375
22	22.000	.500
24	24.000	.500
26	26.000	.500
28	28.000	.500
30	30.000	.500
32	32.000	.500
34	34.000	.500

Casing Type	Casing Diameter (inches)	Casing Interval (feet bls)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/State Regs. on Casing Thickness
Steel(1)	18 I.D.	0 - 650	Welded	24	N.F.	N/A
(1) Casing perforated from 650 to 750 feet bls.						

3) Seal

State of Idaho Reg. 3.3.1. and 3.3.2.1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters.

Annular Fill Material	Interval (feet bls)	Mixture/Volumes	Material Approved by State of Idaho Regs.
Clay	0 - 416	N.F.	Yes
Cement	416 - 422	N.F.	Yes
Gravel Pack	422 - 750	N.F.	Yes
Cement	750 - 753	9 sacks cement	Yes

a) Does the surface seal extend at a minimum from ground surface to the top of bedrock: (Yes X No _ Insufficient Data X N/A _) Explanation: Clay fills the annular space from 0 - 416 ft. bls., the alluvium/basalt interface is at approximately 12 ft. bls.

b) If the seal is documented, how was it emplaced (provide intervals if there was more than one grouting event): (Yes _ No _ Insufficient Data X N/A _) Explanation: The available information is incomplete and does not identify the method used to emplace the seal.

State of Idaho Reg. 3.3.1. The casing seal is to prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams, spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No X Insufficient Data _ N/A _) Explanation: None of the hydrologic features mentioned above are in close proximity to this well. The industrial waste pond and the ditch associated with it are the most prominent hydrologic feature at ANL-W and they are over 600 ft. away from this well.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X Insufficient Data _ N/A _) Explanation: (Qualify data/specify perched intervals if applicable) The only known perched water body at ANL-W is a small perched body associated with the industrial waste pond which is over 600 ft. away from this well.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes X No _ Insufficient Data _ N/A _) Explanation: The clay fill from 0 - 416 ft. bls. provides an adequate seal to prevent the movement of groundwater within the annular space.

4) Gravel Pack. Does the well contain a gravel pack: (Yes X No _) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes X No _ Insufficient Data X N/A _) Explanation: The cement gravel pack seal at 416 - 422 ft. bls. should prevent groundwater from entering the gravel pack through the annulus from above.

D. WELL MUST COMPLY WITH "RECOMMENDED STANDARDS FOR WATER WORKS" (1992), A REPORT OF THE COMMITTEE OF THE GREAT LAKES-UPPER MISSISSIPPI RIVER BOARD OF STATE SANITARY ENGINEERS.

1) Does the well contain a packer that is in contact with the groundwater supply interval: (Yes _ No X Insufficient Data _ N/A _). If yes, is the packer comprised of materials that are toxic, will impair taste or odor, or facilitate bacterial contamination of the well water: (Yes _ No _ Packer Type _ N/A X)

2) Screen

a) Does the well contain perforated casing or a screen: (Yes X No Insufficient Data _ N/A _) If yes, the perforated screen or casing must be installed so that the pumping water level remains above it under operating conditions. The following determination was made from the available production water level data which will vary with changes in the static water levels (water table elevation); therefore, the following determination may not be valid under all conditions. Is the criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: The reported production water level is approximately 639 ft. bls., the perforated casing is installed starting at 650 ft. bls., approximately 10 ft. below the production water level.

b) Is the perforated casing or screen constructed of material resistant to damage by chemical action from the groundwater or cleaning operations: Material Type Steel Explanation: Steel is an acceptable well construction material for casing or screen in a non-acidic environment such as the Snake River Plain aquifer, as is demonstrated in EG&G report EGG-ER-8496.

3) If the casing is constructed of nonferrous material, it must be resistant to the corrosiveness of the water. Is this criterion met:
(Yes _ No _ Insufficient Data _ N/A X)

4) Was the well adequately developed to remove native silts and clays, drilling mud or the finer fraction of the gravel pack: (Yes X No _ Insufficient Data N/A _) Explanation: The well was developed while conducting a two day pump test starting on November 20th and continuing through November 24th, 1959

E. **THE PRIMARY SOURCE FOR THE WELL EVALUATION IS THE IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY. OTHER SOURCES:** Wood, T. R., L. C. Hull and M. H. Doornbos, "Groundwater Monitoring Plan and Interim Status Report for Central Facilities Landfill II", EEG-ER-8496, EG&G April 1989. Golder Associates Inc. "Draft Argonne National Laboratory - West Groundwater Monitoring Program, Section 3.4, 3.5, and 3.6,", 1992. Idaho Department of Health and Welfare - Department of Environmental Quality, Drinking Water Supply Report 12/9/90. ANL-W letter, G. C. Marshall to E. J. Hughes "Idaho Water Quality Bureau Action Items", April, 29, 1991. ANL-W letter, C.Martin to T. Norton "Transmittal of Well Information" 2/8/93

N.F. Not Found
N/A Not Applicable
N.R. Not Required

F. WELL FITNESS DETERMINATION

Intended use: PRODUCTION/POTABLE WELL

( ) Well is acceptable for intended use.
( ) Well is acceptable for intended use if a variance is granted.
( ) Maintenance required to continue intended use.
(X) Remediation required to continue intended use.
( ) Decommission, well is unneeded or cannot be remediated.

DEFICIENCIES: The following items are not in compliance with Idaho State regulations or are not documented in the records. The thickness of the 18 inch casing was not able to be determined. The well can not be pumped to waste and there is a storm drainage ditch within 50 ft. of the well.

REMEDIATION: The well should be modified to pump to waste, which is scheduled to be done in fiscal 1993. Additionally, a portion of the storm drainage ditch should be revamped to circumvent a 50 ft. radius from the well.

GEOLOGIC LOG

Well Name EBR-II #2

Source: Driller's Lithologic Log

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Interval (feet below surface)

Begin	End	Description
0	10	Silt
10	14	Gray Basalt
14	39	Basalt / Silt / Clay
39	153	Basalt
153	157	Basalt with Silt
157	196	Basalt
196	211	Basalt and Cinders
211	310	Gray Basalt
310	323	Basalt and Cinders
323	445	Gray Basalt
445	477	Basalt and Cinders
477	527	Reddish Gray Basalt
527	546	Gray Basalt
546	552	Basalt and Cinders
552	590	Basalt trace Silt and Sand
590	646	Basalt
646	677	Gray and Reddish Basalt
677	745	Gray Basalt
745	753	No Data

COMPILED BY/ORGANIZATION: T. Norton / GAI Date 2/10/93

WellName: EBR-II #2 Corrections: WELL IS LOCATED IN A WELL HOUSE

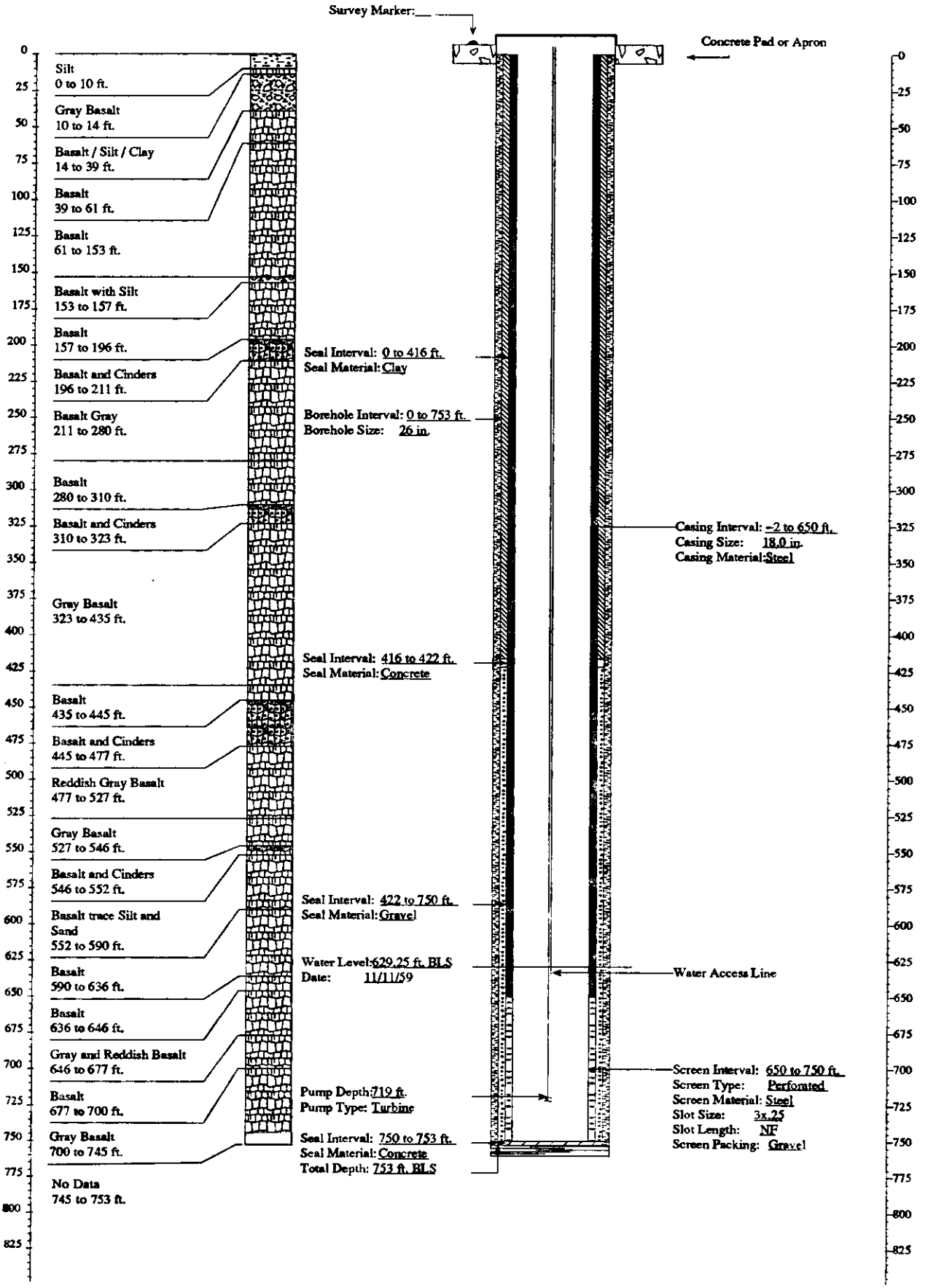
09/11/1993

Facility: ANL
Well Type: Potable Water Well
Well Status: Active
Year Drilled: 1959
Total Depth: 753

Easting: 370090.50
Northing: 703367.10
Longitude: 1123925.36
Latitude: 433544.39
Completion Depth: 753

Driller: Andrew
Geologist: NF
Drilling Method: Cable tooled
Drilling Fluid: NF
Land Surface: 5120.7

Water Level: 629.25
Water Level Date: 11/11/59
Water Level Access: line



FITNESS-FOR-USE CHECKLIST FOR AQUIFER AND PERCHED GROUNDWATER MONITORING/OBSERVATION WELLS

LOCATION: ANL-W **Well Name/No.** SITE-16

A. WELL USE

1) Year well was drilled: 1957

2) Current use for well:
( )DOE 5400.1 Monitoring
( )RCRA Monitoring (X)USGS Observation
( )CERCLA Characterization ( )No Documented Use
( )Other: _

3) Constituents monitored currently: None - well used exclusively for water level measurements.

4) Water level monitored: (Yes X No _ Insufficient data _)

5) Is the well used for USGS observation: (Yes X No _)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well used or proposed for compliance/detection monitoring:
(Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/Contact person: USGS / Larry Mann

B. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells are being resurveyed as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890). The project started in the summer of 1992.

1) Well located by field inspection: (Yes X No_)
2) Protective posts: (Yes X No _) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes X No _)
4) Does the well contain a survey marker: (Yes X No _)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No _ N/A X)
6) Based on location of well, is existing or planned surface completion adequate:
(Yes X No _)

C. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS " (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ Insufficient Data _)
b) Access to measure water levels: (Yes X No _ Insufficient Data _)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes _ No _ N/A X)

b) If well is completed in alluvium, is borehole size at least 2 inches greater than the O.D. of casing: (Yes _ No _ N/A X
Borehole size _ Casing size _)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater:
(Yes X No _ N/A _)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to top of bedrock: (Yes X No _ Borehole size 15.25 inch Casing size 8.25 inch I.D.)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Wrought Iron ?	8.25 I.D.	0 - 758.4	N.F.	24	N.F.	N.F.

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Seal Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
Sand / Cement Grout	0 - 35	N.F.	Yes
Cement	758 (bottom of casing set in cement)	N.F.	Yes

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in the alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes X No Uncertain/None documented _)

b) If the seal is documented, how was it emplaced (provide intervals if there was more than one grouting event): N/A _ Uncertain/not documented X Explanation for seal emplacement _

State of Idaho Reg. 3,3,1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes X No _) Explanation The well is located within ANL-West approximately 800 feet from the leach pits and waste ponds and 50 feet from an open storm ditch.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X Insufficient data _) Explanation (Qualify data/specify perched intervals if applicable) No perched groundwater was encountered during drilling in 1991 at ANL-West (see section E). Also, there is no indication of extensive perched water associated with interbeds based on the neutron logs (LATA, 1990,).

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: No, the casing is unsealed between 35 feet bls and the tack cement at the bottom of the casing at 758 feet bls. However, no evidence of perched water was found between the surface seal and the water table.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X) Explanation _

D. IS THE WELL USED FOR RCRA MONITORING (YES _ NO X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X). (If no, proceed to section E)

The State of Idaho Well Construction Regulations and INEL Best Management Practices that overlap with RCRA guidelines and regulations will not be duplicated in this section.

1) Were the drill rig, equipment, casing and screen steam cleaned before drilling and installation: (Yes _ No _ No documentation _) Explanation _

2) Were drilling additives used: (Yes _ No _ Uncertain/No documentation _) Drilling Method _ Additive(s)/Quantity _

3) Are the casing (that portion which is within the sampling interval), the screen, the pump and the pump discharge pipe constructed of nonreactive material which does not affect/interfere with chemical, physical, biological or radiological constituents of interests: (Yes _ No _)

Material

Casing _____

Screen _____

Pump _____

Discharge Pipe _____

Explanation _____

4) Is the screen factory fabricated: (Yes _ No _ No screen _) Type _

5) Is the monitoring interval adequate to detect the contaminants of concern, i.e. "floaters", "sinkers" or dissolved constituents: (Yes _ No _) Explanation _

6) Is the monitoring interval greater than 30 feet in length: (Yes _ No _) or does the well monitor more than one type of lithology: (Yes _ No _) Monitoring interval _

7) Is the filter pack present: (Yes _ No _) If yes, is the filter pack comprised of chemically inert material: (Yes _ No _ Uncertain _ N/A _) Does it extend no more than 2 feet above screen: (Yes _ No _ N/A_) Filter pack type _ Filter pack interval _

8) Has the well been developed to ensure turbid free groundwater samples, i.e. <5 NTUs: (Yes _ No _ Not Documented _) and to restore the natural hydraulic conductivity of the formation, i.e. stabilization of parameters: (Yes _ No _ Not Documented _ Well development type and duration _)

9) Is the pump intake location documented: (Yes _ No _ Depth _)

10) Does the pump type collect representative ground-water samples: (Yes _ No _ Not Documented _) Type_ Explanation _

E. **THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES:** "Report for the EBR-II Leach Pit Sampling and Analysis Program and Monitoring Well Installation" (Golder Associates, 1992); "Monitoring, Analysis, and Test Plan for EBR-II Leach Pit for ANL-West" (LATA, 1990)

N.F. - Not Found/No Documentation
N/A - Not Applicable

F. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: USGS Observation/State Regulations and INEL Best Management Practices

( ) Well complies with applicable regulations and is acceptable for intended use.
(X) Well complies with applicable regulations except for minor construction details and is acceptable for intended use.
( ) Well does not meet applicable regulations, a variance should be obtained. If variance not obtained, remediation is required to comply with the regulations.
( ) Well does not meet applicable regulations and intended use, remediation is required.
( ) Well does not meet applicable regulations and should not be used for this purpose.
( ) Insufficient/uncertain data is available to evaluate compliance to the regulations.
( ) Abandonment, well is unneeded or cannot be remediated.

Deficiencies: The well complies with state well construction regulations except that the casing thickness and joint type were not documented, which are minor deficiencies. Although the well is 50 feet from an open storm ditch, the well contains a surface seal to a depth of 35 feet. No evidence was found of perched groundwater in the well between the seal and the water table at about 630 feet bls or extensive perched water at the ANL-West facility (see section C.3.d.).

Remediation: None. However, since the well is located 800 feet from the ANL leach pits and waste ponds, a neutron log should be run in the well periodically to ascertain the continued absence of perched water near the well.

 GEOLOGIC LOG Well Name SITE-16

Source: Driller's Log

****

Interval (feet below surface)

Begin	End	Description
0	4	Clay
4	20	Loose Rock and Clay
20	25	Basalt
25	39	Reddish Gray Basalt
39	55	Brown Clay and Cinders
55	60	Brown Clay / Cinders / Red Basalt
60	89	Red and Gray Basalt
89	130	Cinders and Basalt
130	135	Red Basalt
135	137	Red Basalt and Cinders
137	237	Gray Basalt
237	247	Red Basalt and Cinders
247	255	Red Basalt
255	257	Red Porous Basalt
257	271	Red Basalt and Clay
271	405	Red and Gray Basalt
405	410	Brown and Tan Clay
410	540	Gray and Red Basalt
540	550	Red Basalt with Brown Clay

COMPILED BY/ORGANIZATION: J.V. Wozniewicz / GAI Date September 9, 1992

 GEOLOGIC LOG Well Name SITE 16

Source: Driller's Log

****

Interval (feet below surface)

Begin	End	Description
550	567	Cinders and Clay
567	590	Gray Basalt
590	594	Brown Clay and Cinders
594	603	Gray Basalt
603	624	Cinders and Basalt
624	633	Red Basalt
633	660	Red and Black Cinders
660	725	Red and Gray Basalt
725	756	Red and Black Cinders
756	758.4	Black Sand

COMPILED BY/ORGANIZATION: J.V. Wozniewicz / GAI Date September 9, 1992

WellName: SITE-16

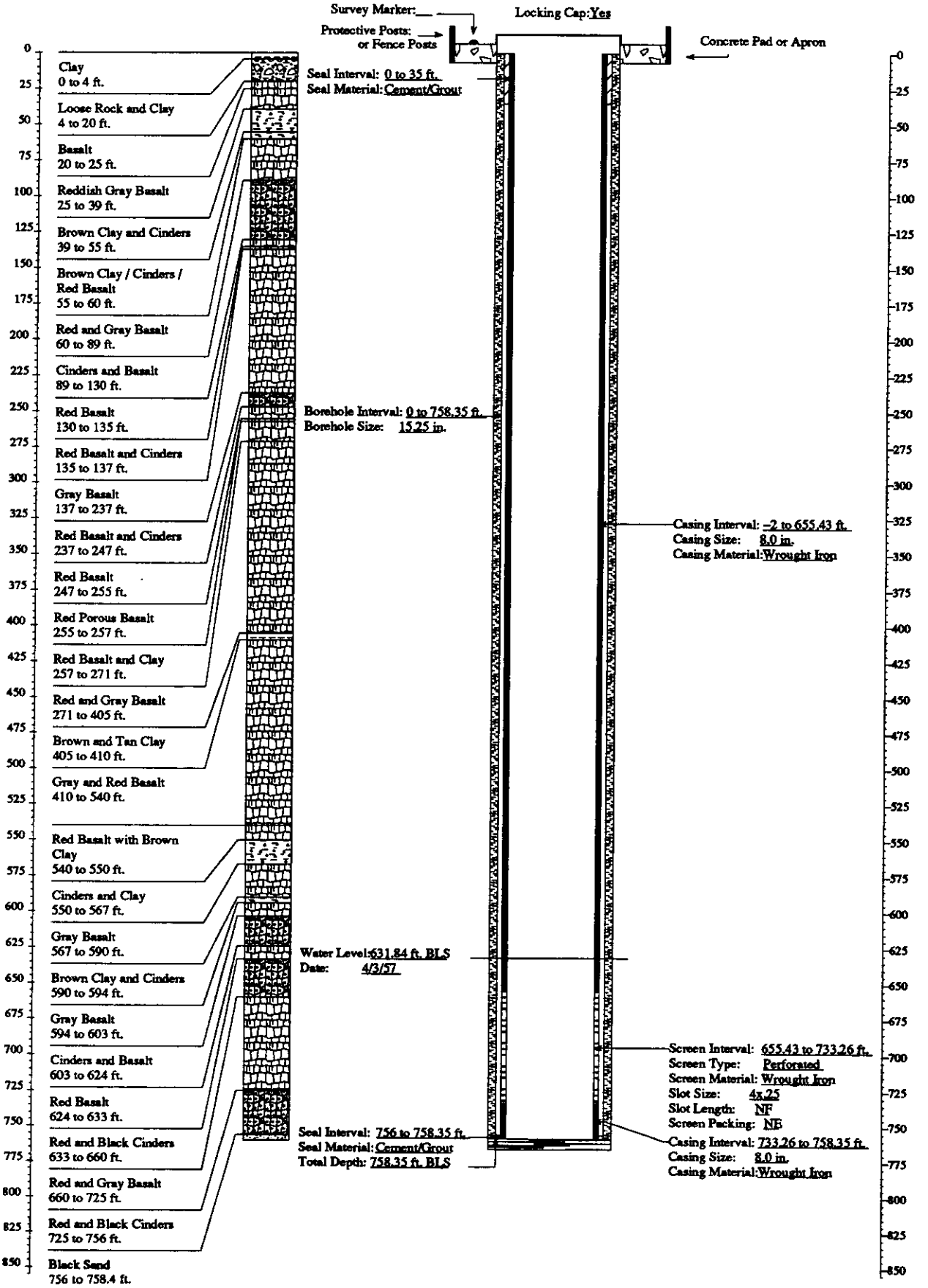
08/15/1993

Facility: ANL
Well Type: Observation Well
Well Status: Active
Year Drilled: 1957
Total Depth: 758.35

Easting: 370827.70
Northing: 703385.30
Longitude: 1123915.34
Latitude: 433544.62
Completion Depth: 758.35

Driller: Cope
Geologist: Shuter,Peckham,RHC
Drilling Method: Cable tooled
Drilling Fluid: NF
Land Surface: 5122.71

Water Level: 631.84
Water Level Date: 4/3/57
Water Level Access: NF



FITNESS-FOR-USE CHECKLIST FOR AQUIFER AND PERCHED GROUNDWATER MONITORING/OBSERVATION WELLS

LOCATION: ANL-W Well Name/No. USGS-100

A. WELL USE

1) Year well was drilled: 1974

2) Current use for well:
( )DOE 5400.1 Monitoring
( )RCRA Monitoring (X)USGS Observation
( )CERCLA Characterization ( )No Documented Use
( )Other: _

3) Constituents monitored currently: USGS Observation - ^{3}H, Cl^{-}, Cr, Na^{+}

4) Water level monitored: (Yes X No _ Insufficient data _)

5) Is the well used for USGS observation: (Yes X No _)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well used or proposed for compliance/detection monitoring:
(Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/Contact person: USGS / Larry Mann.

B. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells are being resurveyed as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890). The project started in the summer of 1992.

1) Well located by field inspection: (Yes X No_)
2) Protective posts: (Yes _ No X) or Fence posts: (Yes X No _)
3) Concrete pad/apron present: (Yes X No _)
4) Does the well contain a survey marker: (Yes X No _)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No _ N/A X)
6) Based on location of well, is existing or planned surface completion adequate:
(Yes X No _)

C. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS " (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ Insufficient Data _)
b) Access to measure water levels: (Yes X No _ Insufficient Data _)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes _ No _ N/A X)

b) If well is completed in alluvium, is borehole size at least 2 inches greater than the O.D. of casing: (Yes _ No _ N/A X Borehole size Casing size _)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes X No _ N/A _)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to top of bedrock: (Yes X No _ Borehole size 10-inch Casing size 8-inch (I.D. or O.D.?) Explanation: Since the recorded borehole size is usually the auger or bit size, the actual borehole is larger than the size specified in most cases.

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Steel (surface casing)	8 (I.D. or O.D.?)	0 - 15	N.F.	3	0.25	Yes
Steel	6 (I.D. or O.D.?)	0 - 662	N.F.	21	0.25	Yes

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Seal Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
Cement Grout	15 (bottom of 8-inch casing set in cement)	N.F.	Yes
Cement Grout	662 (bottom of 6-inch casing set in cement)	N.F.	Yes

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in the alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced (provide intervals if there was more than one grouting event): N/A X Uncertain/not documented _ Explanation for seal emplacement _

State of Idaho Reg. 3,3,1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No X) Explanation The well is approximately 1 mile southwest of ANL-West.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X Insufficient data _) Explanation (Qualify data/specify perched intervals if applicable) No evidence was found of perched groundwater near the well.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: No, the well contains no documented surface seal except at the bottom of the 8-inch casing. However, no evidence was found for perched groundwater or surface water in the area.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack:(Yes _ No _ N/A X) Explanation _

D. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X). (If no, proceed to section E)

The State of Idaho Well Construction Regulations and INEL Best Management Practices that overlap with RCRA guidelines and regulations will not be duplicated in this section.

1) Were the drill rig, equipment, casing and screen steam cleaned before drilling and installation: (Yes _ No _ No documentation _) Explanation _

2) Were drilling additives used: (Yes _ No _ Uncertain/No documentation _) Drilling Method _ Additive(s)/Quantity _

3) Are the casing (that portion which is within the sampling interval), the screen, the pump and the pump discharge pipe constructed of nonreactive material which does not affect/interfere with chemical, physical, biological or radiological constituents of interests: (Yes _ No _)

Material

Casing _____

Screen _____

Pump _____

Discharge Pipe _____

Explanation _____

4) Is the screen factory fabricated: (Yes _ No _ No screen _) Type _

5) Is the monitoring interval adequate to detect the contaminants of concern, i.e. "floaters", "sinkers" or dissolved constituents: (Yes _ No _) Explanation _

6) Is the monitoring interval greater than 30 feet in length: (Yes _ No _) or does the well monitor more than one type of lithology: (Yes _ No _) Monitoring interval _ Explanation _

7) Is the filter pack present: (Yes _ No _) If yes, is the filter pack comprised of chemically inert material: (Yes _ No _ Uncertain _ N/A _) Does it extend no more than 2 feet above screen: (Yes _ No _ N/A_) Filter pack type _ Filter pack interval _

8) Has the well been developed to ensure turbid free groundwater samples, i.e. <5 NTUs: (Yes _ No _ Not Documented _) and to restore the natural hydraulic conductivity of the formation, i.e. stabilization of parameters: (Yes _ No _ Not Documented _) Well development type and duration _

9) Is the pump intake location documented: (Yes _ No _) Depth _

10) Does the pump type collect representative ground-water samples: (Yes _ No _ Not Documented _) Type_ Explanation _

E. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: None

N.F. - Not Found/No Documentation
N/A - Not Applicable

F. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: USGS Observation/State Regulations and INEL Best Management Practices

( ) Well complies with applicable regulations and is acceptable for intended use.
( ) Well complies with applicable regulations except for minor construction details and is acceptable for intended use.
(X) Well does not meet applicable regulations, a variance should be obtained. If variance not obtained, remediation is required to comply with the regulations.
( ) Well does not meet applicable regulations and intended use, remediation is required.
( ) Well does not meet applicable regulations and should not be used for this purpose.
( ) Insufficient/uncertain data is available to evaluate compliance to the regulations.
( ) Abandonment, well is unneeded or cannot be remediated.

Deficiencies: The well contains no documented surface seal except at the bottom of the 8-inch casing, which does not comply with state regulations. However, the well is about 1 mile from ANL-West, the nearest facility, and is not in proximity to any other potential sources of surface or subsurface contamination. Since no evidence was found for perched water near the well and the potential for contaminant migration within the annulus is extremely low, a variance should be requested for the lack of a surface seal. Also, no documentation was found for the casing joint types, which is a minor deficiency. Although the 8-inch casing extends 3 inches above ground instead of the required 12 inches, it is sealed by a concrete pad.

Remediation: None

GEOLOGIC LOG

Well Name USGS-100

Source: USGS Generalized Lithologic Log

****

Interval (feet below surface)

Begin	End	Description
0	290	Basalt
290	300	Cinders
300	315	Basalt
315	320	Cinders
320	385	Basalt
385	390	Clay
390	565	Basalt
565	570	Cinders
570	660	Basalt
660	670	Clay
670	685	Basalt
685	750	Basalt with Sediment Infillings

COMPILED BY/ORGANIZATION: J.M. Sabel / GAI Date August 20, 1992

WellName: USGS-100

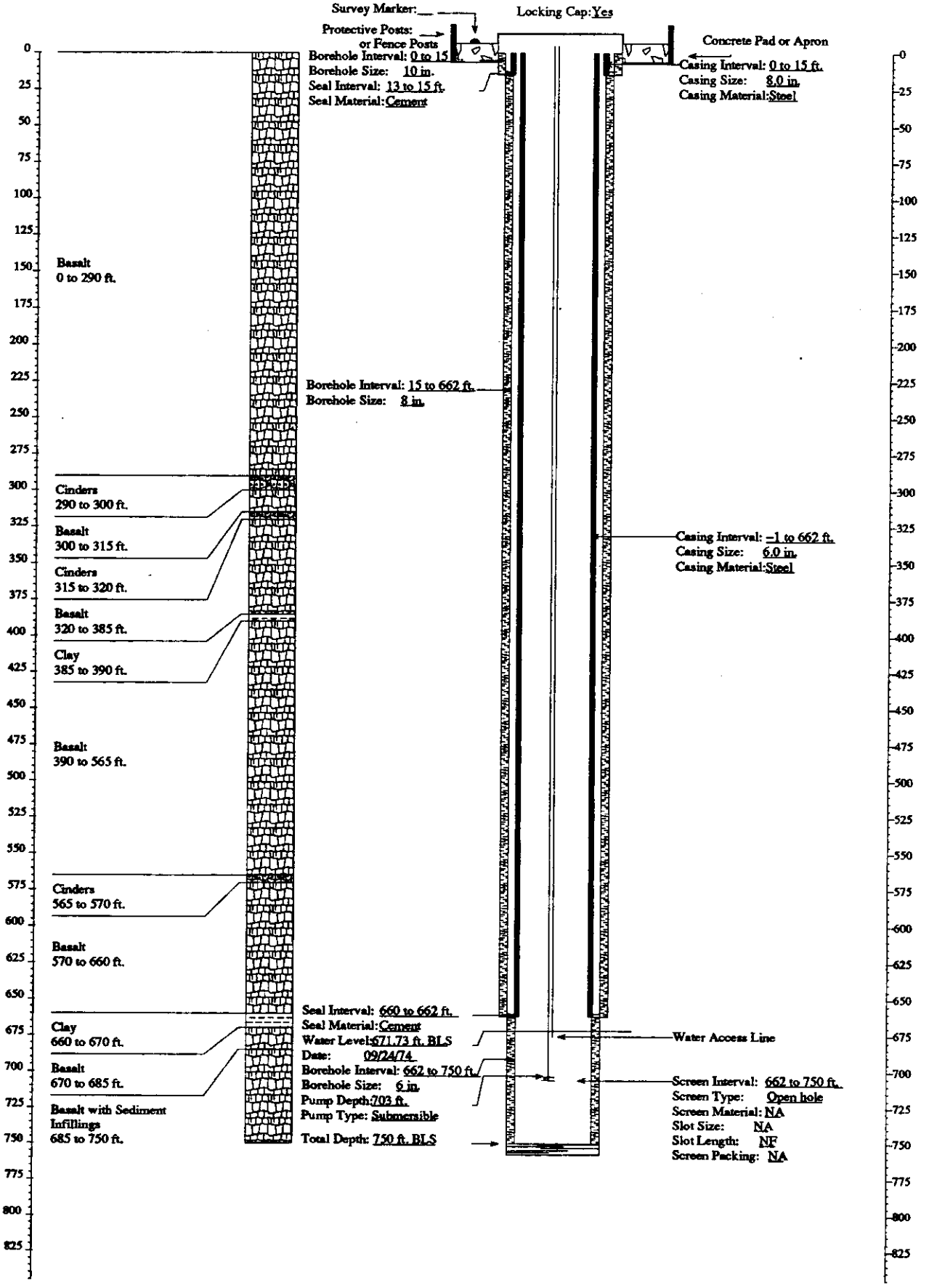
08/22/1993

Facility: ANL
Well Type: Observation Well
Well Status: Active
Year Drilled: 1974
Total Depth: 750

Easting: 367030.64
Northing: 699158.65
Longitude: 1124006.60
Latitude: 433502.65
Completion Depth: 750

Driller: Andrew
Geologist: NF
Drilling Method: Air rotary
Drilling Fluid: NF
Land Surface: 5161.3

Water Level: 671.73
Water Level Date: 09/24/74
Water Level Access: Line



INEL COMPREHENSIVE WELL SURVEY

CHECKLIST FOR ABANDONED/DESTROYED WELLS

Location ARA Well Name/No. ACRE I WELL

A. Sources for Well Abandonment

1) What sources indicated that the well was plugged or destroyed:
( ) Comprehensive Well Survey status: _
(X) INEL Well Catalog (field survey by K. Beard) _
( ) Personal communication _
( ) Other _

2) Was the well located by field inspection and documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380)
(?) Well was located by field inspection. The well located during the field inspection was not positively identified as the ACRE I well.
( ) Well was not located by field inspection.

B. Abandonment Procedures

1) How was the well abandoned or destroyed:
( ) Backfilled
( ) Buried
( ) Grouted
( ) Other
(X) Not documented

2) List procedure and amounts of material used to abandon the well:
Not documented

C. Well Casing

1) Does the well contain surface or other well casing:
Yes _ No _ Not Documented X

2) Was the annular space between the casing and borehole grouted:
Yes _ No _ Not Documented X N/A _ Comment: _

D. Compliance with State Regulations

State of Idaho Reg.3.12.1. Permanently abandoned wells may have the casing removed or left in place and shall be filled with bentonite grout, cement grout, concrete, puddling clay, or other material as required to stop the upward or downward movement of water and prevent the waste and/or contamination of the ground water.

CHECKLIST FOR ABANDONED/DESTROYED WELLS

Location ARA Well Name/No. ACRE I WELL

1) Total depth of well N.F. ft. Top of basalt N.F. ft.

2) Was the well properly abandoned in accordance with Idaho State regulations:
Yes _ No _ Not Documented X Not Certain _

3) Are additional abandonment procedures necessary:
Yes _ No _ Not Certain X
Explanation: No information was found concerning this well except for the coordinates. The well located during the wellhead field inspection appeared to be abandoned but was not positively identified as the ACRE I well. Whether or not this well is ACRE I should be ascertained.

 GEOLOGIC LOG Well Name ACRE I WELL

Source: Lithology Log Not Found

****

Interval (feet below surface)

Begin	End	Description

COMPILED BY/ORGANIZATION: T.L. Morgan / GAI Date Decemeber 30, 1992

FITNESS-FOR-USE CHECKLIST POTABLE WATER/PRODUCTION WELL

LOCATION: ARA (Building ARA 601) Well Name/No. ARA-1

A. WELL USE

1) Year well was drilled: 1957

2) Current use for well:
(X) Potable water production well
( ) Raw water production well

3) Well is: ( ) Active (X) Inactive - The well is scheduled to be decommissioned and decontaminated in fiscal 1993. See F.

4) Program Plan: N/A

5) Responsible Organization/Contact Person: EG&G, Brad Andersen

6) Has a sanitary survey been performed on the drinking water system by the Idaho Department of Health and Welfare: (Yes X No _ Insufficient Data NA _) Date performed 2-12-85 Deficiencies reported relevant to scope of Fitness for Use Checklist / Corrective actions taken: _

The following evaluation pertains to well construction and does not address the design of the distribution system outside of well house or water quality issues.

B. WELL MUST COMPLY WITH IDAHO DEPARTMENT OF HEALTH AND WELFARE RULES AND REGULATIONS, TITLE 1, CHAPTER 8, "IDAHO REGULATIONS FOR PUBLIC DRINKING WATER SYSTEMS", SPECIFICALLY SUBSECTION 01.08550 "STANDARDS FOR PUBLIC DRINKING WATER SYSTEMS." WELL MUST ALSO COMPLY WITH IDAHO DEPARTMENT OF WATER RESOURCES "RULES AND REGULATIONS WELL CONSTRUCTION STANDARDS" (JANUARY 1989). THESE CRITERIA WILL BE EVALUATED IN SECTION C.

In addition, the Department of Health and Welfare has adopted "Recommended Standards for Water Works" (Albany, New York, 1992). The criteria from this report not included in "State Regulations for Well Construction" will be discussed in Section D.

1) Well shall not be located in a pit. Is this criterion met:
(Yes X No _ Insufficient Data _ N/A _)

2) Is a well house provided for this well: (Yes X No _ Insufficient Data _ N/A _) (If no, proceed to section 3)

a) Well house shall be provided with a locking door. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

b) Well house shall be protected from flooding and adequately drained. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

c) Floor drains shall not be connected to sewers, storm drains, or any other source of contamination. Is this criterion met: (Yes _ No _ Insufficient Data X N/A _) Explanation: N.R.

d) Sumps for well house floor drains shall not be within 30 feet of the well. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

e) Well house shall not be used to store toxic or hazardous materials. Is this criterion met: (Yes _ No _ Insufficient Data X N/A _) Explanation: N.R.

3) Is the well constructed with a pitless adapter or pitless unit: (Yes _ No X Insufficient Data _ N/A _) (If no, proceed to Section 4)

a) The unit shall be the type approved by the National Sanitation Division or Pitless Adaptor Division of the Water Systems Council. Is this criteria met: (Yes _ No _ Insufficient Data _ N/A _) Explanation: _

b) The unit shall be designed to be watertight including the well cap and casing extension. Is this criterion met: (Yes _ No _ Insufficient Data _ N/A _) Explanation: _

c) The unit shall be tested for leaks prior to being put into service. Is this criterion met: (Yes _ No _ Insufficient Data _ N/A _) Explanation: _

4) Well must not be located within 50 or 100 feet of any potential source of contamination and no closer to specific sources of contamination than set forth below.

a) The well must not be within 50 feet of sewer lines. Is this criterion met: (Yes _ No _ Insufficient Data X N/A _) Explanation: N.R.

b) The well must not be within 50 feet of canals, streams, ditches, lakes, ponds and tanks used to store non-potable substances. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

c) The well must not be within 100 feet of a drainfield or a drainfield replacement area. Is this criterion met:
(Yes _ No X Insufficient Data _ N/A _) Explanation: N.R.

d) Is the well within 50 feet of contaminated perched water bodies: (Yes No X Insufficient Data _ N/A _) Explanation: N.R.

5) Well casing shall extend a minimum of 12 inches above the ground surface and 6 inches above the well house floor. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

6) Well shall be vented with the open end screened and terminated downward at least 18 inches above the well house floor or ground surface. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

7) Well shall be equipped with the necessary valves and appurtenances to allow the well to be pumped to waste. Is this criterion met: (Yes _ No _ Insufficient Data X N/A _) Explanation: N.R.

8) A flow meter and sample tap shall be installed on discharge line. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

9) A pressure gauge shall be provided at all installations. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

10) Well shall be cased and sealed in such a manner that surface water can not enter the well and a watertight seal shall be provided at the top of the casing. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _)
Explanation: N.R.

C. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "RULES AND REGULATIONS WELL CONSTRUCTION STANDARDS" (1989)

1) Surface Completion

State of Idaho Reg. 3.2.1. The top of the casing shall be completely covered with a 1/4-inch thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3.11. The well shall be equipped with an access port which has a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ Insufficient Data _)

b) Access to measure water levels: (Yes X No _ Insufficient Data X)

2) Casing

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

a) If the well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes X No _ Insufficient Data _ N/A _) Explanation: The alluvium/basalt interface is less than 100 ft. bls., and 16-inch casing is installed from 2 ft. als. through 787 ft. bls.

b) If the well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to top of bedrock: (Yes X No _ Borehole size inches 22 Casing size inches 16)

c) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-coupled joints which shall be watertight or be approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480 which is a combination of Idaho State regulations for casing less than 6 inches in diameter and "Recommended Standards for Water Works" (1992) for casings greater than 26 inches in diameter.

Permanent Steel Casing Minimum Specifications		
Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 I.D.	6.625	.280
8	8.628	.322
10 I.D.	0.750	.365
12	12.750	.375
14	14.000	.375
16	16.000	.375
18	18.000	.375
20	20.000	.375
22	22.000	.500
24	24.000	.500
26	26.000	.500
28	28.000	.500
30	30.000	.500
32	32.000	.500
34	34.000	.500

Casing Type	Casing Diameter (inches)	Casing Interval (feet bls)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/State Regs. on Casing Thickness
Steel [1]	16	-2 - 787	N.F.	24	.375	Yes
[1] Casing perforated from 618 to 640, 662 to 704, 723 to 766 feet bls.						

3) Seal

State of Idaho Reg. 3.3.1. and 3.3.2.1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters.

Annular Fill Material	Interval (feet bls)	Mixture/Volumes	Material Approved by State of Idaho Regs.
Clay	0 - 570	N.F.	Yes
Cement	570 - 580	N.F.	Yes
Gravel Pack	580 - 785	N.F.	Yes
Cement	785 - 787	N.F.	Yes

a) Does the surface seal extend at a minimum from ground surface to the top of bedrock: (Yes X No _ Insufficient Data _ N/A _) Explanation: The clay annular fill runs from 0 - 570 ft. bls.

b) If the seal is documented, how was it emplaced (provide intervals if there was more than one grouting event): (Yes _ No _ Insufficient Data X N/A _) Explanation: The method used to place the clay annular fill was not documented in the available information.

State of Idaho Reg. 3.3.1. The casing seal is to prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams, spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No X Insufficient Data _ N/A _) Explanation: None of the hydrologic features mentioned above are in proximity to the well.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X Insufficient Data _ N/A _) Explanation (Qualify data/specify perched intervals if applicable): There were no geophysical logs identified for this well in the available information. However, there is not a source of water in the vicinity with enough recharge capable of generating a substantial perched water body.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes X No _ Insufficient Data _ N/A _) Explanation: The clay annular fill runs from 0 - 570 ft. bls. the top of the gravel pack seal.

4) Gravel Pack. Does the well contain a gravel pack: (Yes X No _) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes X No _ Insufficient Data N/A _) Explanation: The cement gravel pack seal placed from 570 - 580 ft. bls. should prevent groundwater from entering the gravel pack through the annulus from above.

D. WELL MUST COMPLY WITH "RECOMMENDED STANDARDS FOR WATER WORKS" (1992), A REPORT OF THE COMMITTEE OF THE GREAT LAKES-UPPER MISSISSIPPI RIVER BOARD OF STATE SANITARY ENGINEERS.

1) Does the well contain a packer that is in contact with the groundwater supply interval: (Yes _ No X Insufficient Data _ N/A _). If yes, is the packer comprised of materials that are toxic, will impair taste or odor, or facilitate bacterial contamination of the well water: (Yes _ No _ Packer Type _ N/A X)

2) Screen

a) Does the well contain perforated casing or a screen: (Yes X No Insufficient Data _ N/A _) If yes, the perforated screen or casing must be installed so that the pumping water level remains above it under operating conditions. The following determination was made from the available production water level data which will vary with changes in the static water levels (water table elevation); therefore, the following determination may not be valid under all conditions. Is the criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: The reported production water level is approximately 609 ft. bls. and the perforated casing is installed starting at 621 ft. bls, so the production water level is 12 ft. above the initial perforations.

b) Is the perforated casing or screen constructed of material resistant to damage by chemical action from the groundwater or cleaning operations: Material Type Steel Explanation: Steel is an acceptable well construction material for casing or screen in a non-acidic environment such as the Snake River Plain aquifer, as is demonstrated in EG&G report EGG-ER-8496.

3) If the casing is constructed of nonferrous material, it must be resistant to the corrosiveness of the water. Is this criterion met:
(Yes _ No _ Insufficient Data _ N/A X)

4) Was the well adequately developed to remove native silts and clays, drilling mud or the finer fraction of the gravel pack: (Yes _ No _ Insufficient Data X N/A _) Explanation: N.R.

E. THE PRIMARY SOURCE FOR THE WELL EVALUATION IS THE IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY. OTHER SOURCES: EG&G Internal Sanitary Survey Checklist 2/12/85. D. Messervy, Personal Communication 2/19/93. Golder Associates Inc. Draft "Auxiliary Reactor Area Groundwater Monitoring Plan" Section 4.5, 1992

N.F. Not Found
N/A Not Applicable
N.R. Not Required

F. WELL FITNESS DETERMINATION

Intended use: PRODUCTION/POTABLE WELL

( ) Well is acceptable for intended use.
( ) Well is acceptable for intended use if a variance is granted.
( ) Maintenance required to continue intended use.
( ) Remediation required to continue intended use.
(X) Decommission, well is unneeded or cannot be remediated.

DEFICIENCIES: The casing joint type and casing thickness are not documented in the available information.

REMEDIATION: The well house pump and associated piping are to be decommissioned and decontaminated (D&D) in fiscal 1993. However, the D&D will only apply to the above ground part of the well. The well may still be useful as a USGS sitewide observation well, since the below surface completion is adequate.

GEOLOGIC LOG

Well Name ARA-1

Source: Geologic Log Not Found

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Interval (feet below surface)

Begin	End	Description

COMPILED BY/ORGANIZATION: T.Norton / GAI Date 2/10/93

WellName: ARA-1 Corrections: WELL IS LOCATED IN A WELL HOUSE

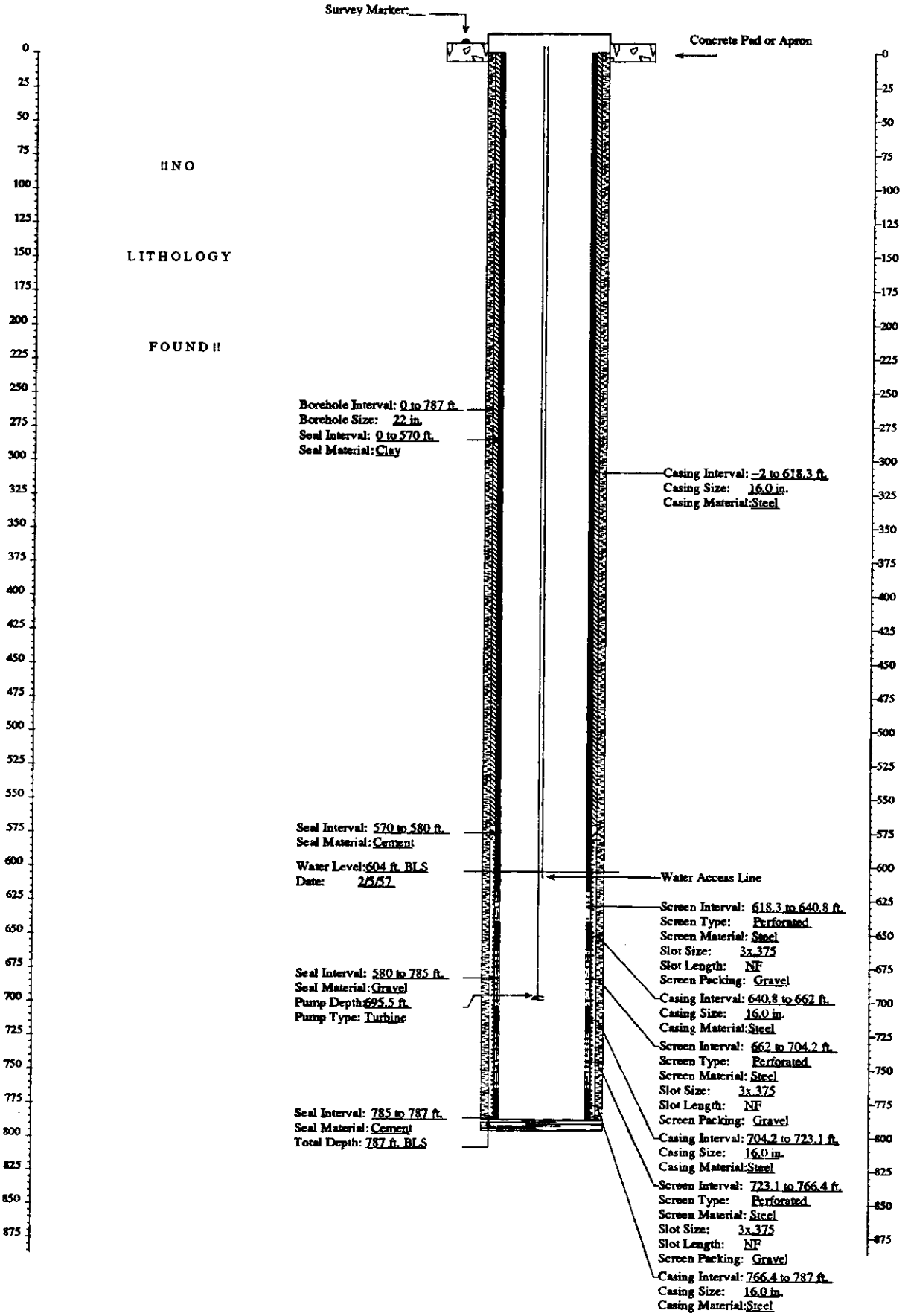
08/24/1993

Facility: ARA
Well Type: Potable Water Well
Well Status: Inactive
Year Drilled: 1956
Total Depth: 787

Easting: 326012.00
Northing: 675475.00
Longitude: 1124921.32
Latitude: 433105.92
Completion Depth: 787

Driller: Strasser
Geologist: R. T. Cowan
Drilling Method: Cable tooled
Drilling Fluid: NF
Land Surface: 4945.1

Water Level: 604
Water Level Date: 2/5/57
Water Level Access: Line



FITNESS-FOR-USE CHECKLIST POTABLE WATER/PRODUCTION WELL

LOCATION: ARA (Building ARA 629) | PAGE 1 of 8 | Well Name/No. ARA-3

A. WELL USE

1) Year well was drilled: 1958

2) Current use for well:
(X) Potable water production well
( ) Raw water production well

3) Well is: ( ) Active (X) Inactive - The well is scheduled to be decommissioned and decontaminated in fiscal 1993. See F.

4) Program Plan: N/A

5) Responsible Organization/Contact Person: EG&G, Brad Andersen

6) Has a sanitary survey been performed on the drinking water system by the Idaho Department of Health and Welfare: (Yes _ No X Insufficient Data NA _) Date performed N/A Deficiencies reported relevant to scope of Fitness for Use Checklist / Corrective actions taken: EG&G conducted an internal sanitary survey on 2/12/85, and identified that the casing vent was inadequate. However, See A.3.

The following evaluation pertains to well construction and does not address the design of the distribution system outside of well house or water quality issues.

B. WELL MUST COMPLY WITH IDAHO DEPARTMENT OF HEALTH AND WELFARE RULES AND REGULATIONS, TITLE 1, CHAPTER 8, "IDAHO REGULATIONS FOR PUBLIC DRINKING WATER SYSTEMS", SPECIFICALLY SUBSECTION 01.08550 "STANDARDS FOR PUBLIC DRINKING WATER SYSTEMS." WELL MUST ALSO COMPLY WITH IDAHO DEPARTMENT OF WATER RESOURCES "RULES AND REGULATIONS WELL CONSTRUCTION STANDARDS" (JANUARY 1989). THESE CRITERIA WILL BE EVALUATED IN SECTION C.

In addition, the Department of Health and Welfare has adopted "Recommended Standards for Water Works" (Albany, New York, 1992). The criteria from this report not included in "State Regulations for Well Construction" will be discussed in Section D.

1) Well shall not be located in a pit. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _)

2) Is a well house provided for this well: (Yes X No _ Insufficient Data _ N/A _) (If no, proceed to section 3)

   a) Well house shall be provided with a locking door. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

   b) Well house shall be protected from flooding and adequately drained. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

   c) Floor drains shall not be connected to sewers, storm drains, or any other source of contamination. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: The well house is equipped with a sump.

   d) Sumps for well house floor drains shall not be within 30 feet of the well. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

   e) Well house shall not be used to store toxic or hazardous materials. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

3) Is the well constructed with a pitless adapter or pitless unit: (Yes _ No X Insufficient Data _ N/A _) (If no, proceed to Section 4)

   a) The unit shall be the type approved by the National Sanitation Division or Pitless Adaptor Division of the Water Systems Council. Is this criteria met: (Yes _ No _ Insufficient Data _ N/A _) Explanation: _

   b) The unit shall be designed to be watertight including the well cap and casing extension. Is this criterion met: (Yes _ No _ Insufficient Data _ N/A _) Explanation: _

   c) The unit shall be tested for leaks prior to being put into service. Is this criterion met: (Yes _ No _ Insufficient Data _ N/A _) Explanation: _

4) Well must not be located within 50 or 100 feet of any potential source of contamination and no closer to specific sources of contamination than set forth below.

   a) The well must not be within 50 feet of sewer lines. Is this criterion met: (Yes _ No _ Insufficient Data X N/A _) Explanation: N.R.

   b) The well must not be within 50 feet of canals, streams, ditches, lakes, ponds and tanks used to store non-potable substances. Is this criterion met: (Yes _ No _ Insufficient Data X N/A _) Explanation: N.R.

   c) The well must not be within 100 feet of a drainfield or a drainfield replacement area. Is this criterion met:
   (Yes _ No _ Insufficient Data X N/A _) Explanation: N.R.

   d) Is the well within 50 feet of contaminated perched water bodies:
   (Yes _ No X Insufficient Data _ N/A _) Explanation: There are no known perched water bodies in the vicinity of ARA.

5) Well casing shall extend a minimum of 12 inches above the ground surface and 6 inches above the well house floor. Are these criteria met:
(Yes _ No _ Insufficient Data X N/A _) Explanation: N.R.

6) Well shall be vented with the open end screened and terminated downward at least 18 inches above the well house floor or ground surface. Are these criteria met: (Yes _ No X Insufficient Data _ N/A _) Explanation: N.R.

7) Well shall be equipped with the necessary valves and appurtenances to allow the well to be pumped to waste. Is this criterion met: (Yes _ No X Insufficient Data _ N/A _) Explanation: N.R.

8) A flow meter and sample tap shall be installed on discharge line. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

9) A pressure gauge shall be provided at all installations. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

10) Well shall be cased and sealed in such a manner that surface water can not enter the well and a watertight seal shall be provided at the top of the casing. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _)
Explanation: N.R.

C. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "RULES AND REGULATIONS WELL CONSTRUCTION STANDARDS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port which has a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ Insufficient Data _)
b) Access to measure water levels: (Yes _ No _ Insufficient Data X)

2) Casing

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

a) If the well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes X No _ Insufficient Data _ N/A _) Explanation: The alluvium/basalt interface is less than 100 ft. bls., and 14-inch casing is installed from 2 ft. als. through 756 ft. bls.

b) If the well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to top of bedrock: (Yes X No _ Borehole size inches 20 Casing size inches 14)

c) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-coupled joints which shall be watertight or be approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480 which is a combination of Idaho State regulations for casing less than 6 inches in diameter and "Recommended Standards for Water Works" (1992) for casings greater than 26 inches in diameter.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 I.D.	6.625	.280
8	8.628	.322
10 I.D.	0.750	.365
12	12.750	.375
14	14.000	.375
16	16.000	.375
18	18.000	.375
20	20.000	.375
22	22.000	.500
24	24.000	.500
26	26.000	.500
28	28.000	.500
30	30.000	.500
32	32.000	.500
34	34.000	.500

Casing Type	Casing Diameter (inches)	Casing Interval (feet bls)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/State Regs. on Casing Thickness
Steel	14	-2 - 756	N.F.	24	N.F.	N/A
Steel	12	700 - 978	N.F.	N/A	N.F.	N/A

3) Seal

State of Idaho Reg. 3.3.1. and 3.3.2.1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters.

Annular Fill Material	Interval (feet bls)	Mixture/Volumes	Material Approved by State of Idaho Regs.
Clay	0 - 580	N.F.	Yes
Cement	580 - 586	N.F.	Yes
Gravel Pack	586 - 756	N.F.	Yes
Grout	756 - 760	N.F.	Yes

a) Does the surface seal extend at a minimum from ground surface to the top of bedrock: (Yes X No _ Insufficient Data _ N/A _)
Explanation: The alluvium/basalt interface is less than 100 ft. bls. and the clay annular fill is placed from 0 - 580 ft. bls.

b) If the seal is documented, how was it emplaced (provide intervals if there was more than one grouting event):
(Yes _ No _ Insufficient Data X N/A _) Explanation: The method used to place clay annular fill was not documented in the available information.

State of Idaho Reg. 3.3.1. The casing seal is to prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams, spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No X Insufficient Data _ N/A _)
Explanation: None of the hydrologic features mentioned above are in proximity to the well.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X Insufficient Data _ N/A _) Explanation (Qualify data/specify perched intervals if applicable): There were no geophysical logs identified for this well in the available information. However, there is not a source of water in the vicinity with enough recharge to capable of generating a substantial perched water body.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes X No _ Insufficient Data _ N/A _)
Explanation: The clay annular fill runs from 0 - 580 ft. bls. and the static water level is at approximately 592 ft.

4) Gravel Pack. Does the well contain a gravel pack: (Yes X No _) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes X No _ Insufficient Data N/A _) Explanation: The cement gravel pack seal placed from 580 - 586 ft. bls. should prevent groundwater from entering the gravel pack through the annulus from above.

D. WELL MUST COMPLY WITH "RECOMMENDED STANDARDS FOR WATER WORKS" (1992), A REPORT OF THE COMMITTEE OF THE GREAT LAKES-UPPER MISSISSIPPI RIVER BOARD OF STATE SANITARY ENGINEERS.

1) Does the well contain a packer that is in contact with the groundwater supply interval: (Yes _ No X Insufficient Data _ N/A _). If yes, is the packer comprised of materials that are toxic, will impair taste or odor, or facilitate bacterial contamination of the well water: (Yes _ No _ Packer Type _ N/A X)

2) Screen

a) Does the well contain perforated casing or a screen: (Yes _ No Insufficient Data X N/A _) If yes, the perforated screen or casing must be installed so that the pumping water level remains above it under operating conditions. The following determination was made from the available production water level data which will vary with changes in the static water levels (water table elevation); therefore, the following determination may not be valid under all conditions. Is the criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: There is steel casing installed to 978 ft. bls., approximately 386 ft. below the static water level, although it is not documented if the casing is perforated or unperforated.

b) Is the perforated casing or screen constructed of material resistant to damage by chemical action from the groundwater or cleaning operations: Material Type Steel Explanation: Steel is an acceptable well construction material for casing or screen in a non-acidic environment such as the Snake River Plain aquifer, as is demonstrated in EG&G report EGG-ER-8496.

3) If the casing is constructed of nonferrous material, it must be resistant to the corrosiveness of the water. Is this criterion met:
(Yes _ No _ Insufficient Data _ N/A X)

4) Was the well adequately developed to remove native silts and clays, drilling mud or the finer fraction of the gravel pack: (Yes _ No _ Insufficient Data X N/A _) Explanation: N.R.

E. THE PRIMARY SOURCE FOR THE WELL EVALUATION IS THE IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY. OTHER SOURCES: EG&G Internal Sanitary Survey Checklist 2/12/85. D. Messervy, Personal Communication 2/19/93. Golder Associates Inc. Draft "Auxiliary Reactor Area Groundwater Monitoring Plan" Section 4.5, 1992

N.F. Not Found
N/A Not Applicable
N.R. Not Required

F. WELL FITNESS DETERMINATION

Intended use: PRODUCTION/POTABLE WELL

( ) Well is acceptable for intended use.
( ) Well is acceptable for intended use if a variance is granted.
( ) Maintenance required to continue intended use.
( ) Remediation required to continue intended use.
(X) Decommission, well is unneeded as a production well or cannot be remediated.

DEFICIENCIES: The casing joint type and casing thickness are not documented in the available information.

REMEDIATION: The well house pump and associated piping are to be decontaminated and decommissioned (D&D) in fiscal 1993. However, the D&D will only apply to the above ground part of the well. The well may still be useful for a USGS Sitewide observation well.

GEOLOGIC LOG

Well Name ARA-3

Source: Geologic Log Not Found

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Interval (feet below surface)

Begin	End	Description

COMPILED BY/ORGANIZATION: T.Norton / GAI Date 2/10/93

WellName: ARA-3 Corrections: WELL IS LOCATED IN A WELL HOUSE

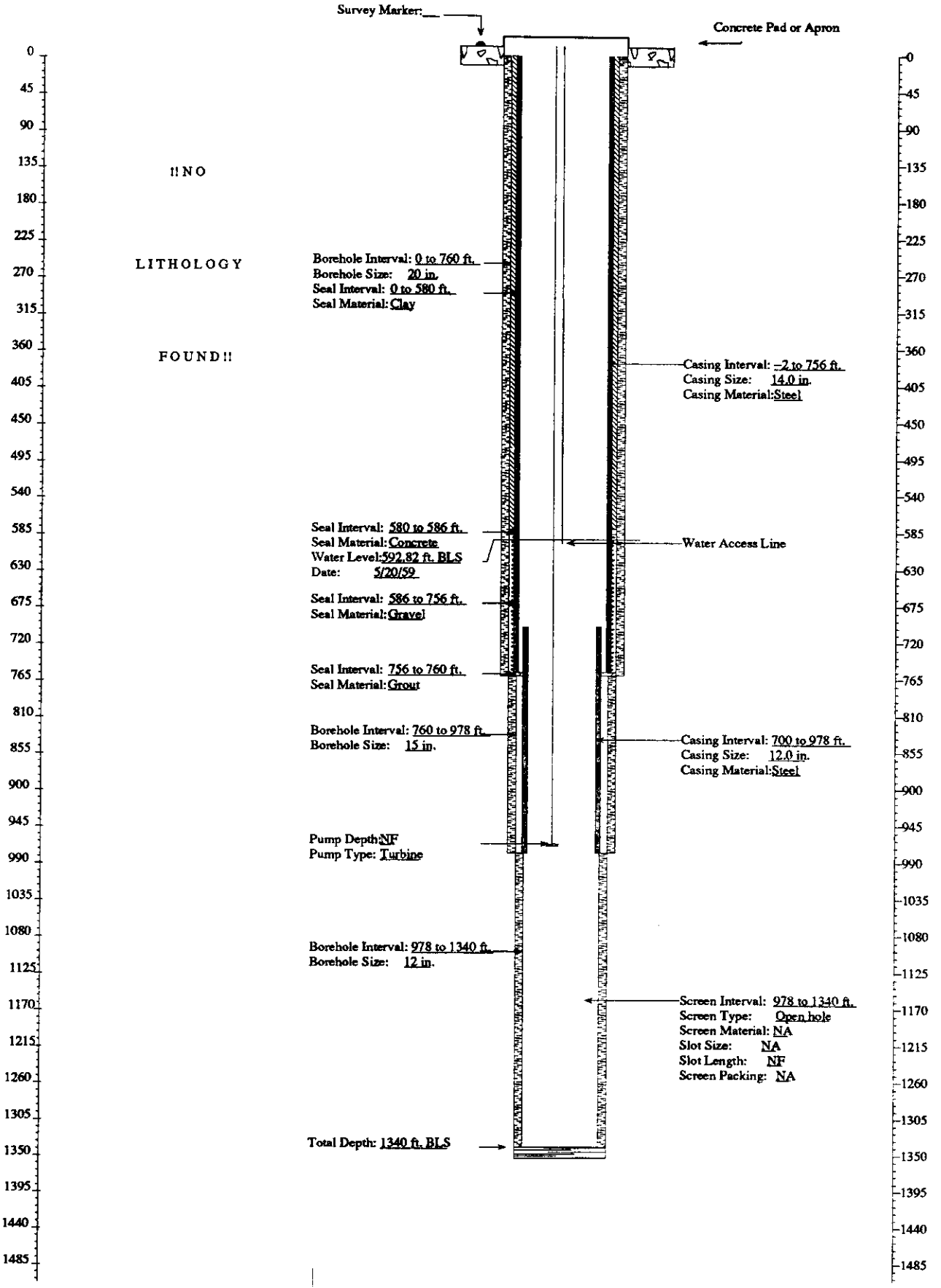
08/02/1993

Facility: ARA
Well Type: Potable Water Well
Well Status: Inactive
Year Drilled: 1959
Total Depth: 1340

Easting: 324388.68
Northing: 680556.67
Longitude: 1124943.89
Latitude: 433155.97
Completion Depth: 1340

Driller: Cushman
Geologist: NF
Drilling Method: Cable tooled
Drilling Fluid: NF
Land Surface: 5053.9

Water Level: 592.82
Water Level Date: 5/20/59
Water Level Access: Line



FITNESS-FOR-USE CHECKLIST FOR AQUIFER AND PERCHED GROUNDWATER MONITORING/OBSERVATION WELLS

LOCATION: ARA Well Name/No. NTP-AREA 2

A. WELL USE

1) Year well was drilled: 1960

2) Current use for well:
( )DOE 5400.1 Monitoring
( )RCRA Monitoring (X)USGS Observation
( )CERCLA Characterization ( )No Documented Use
( )Other: _

3) Constituents monitored currently: USGS Observation - ^{3}H, ^{90}Sr, Cl^{-}, Na^{+}, NO_3^{-}

4) Water level monitored: (Yes X No _ Insufficient data _)

5) Is the well used for USGS observation: (Yes X No _)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well used or proposed for compliance/detection monitoring:
(Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/Contact person: USGS / Larry Mann

B. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells are being resurveyed as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890). The project started in the summer of 1992.

1) Well located by field inspection: (Yes X No_)
2) Protective posts: (Yes _ No X) or Fence posts: (Yes X No _)
3) Concrete pad/apron present: (Yes X No _)
4) Does the well contain a survey marker: (Yes X No _)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No _ N/A X)
6) Based on location of well, is existing or planned surface completion adequate:
(Yes X No _)

C. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS " (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ Insufficient Data _)
b) Access to measure water levels: (Yes X No _ Insufficient Data _)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes _ No _ N/A X)

b) If well is completed in alluvium, is borehole size at least 2 inches greater than the O.D. of casing: (Yes _ No _ N/A X
Borehole size _ Casing size _)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater:
(Yes X No _ N/A _)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to top of bedrock: (Yes X No _ Borehole size 16 inch Casing size 10 inch I.D.)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Steel	10 I.D.	0 to 877	N.F.	16	N.F.	N.F.

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Fill Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
Clay	0 - 647	N.F.	N.F.
Cement	647 - 653	N.F.	Yes
Gravel	653 - 876 est.	14 yards .38/.75-inch gravel	N/A
Cement	876 est. - 877 (bottom of casing set in cement)	6 sacks of cement	Yes

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in the alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes X No Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced (provide intervals if there was more than one grouting event): N/A _ Uncertain/not documented X Explanation for seal emplacement _

State of Idaho Reg. 3,3,1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No X) Explanation The well is approximately 2 miles east of the nearest facility (ARA).

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X Insufficient data _) Explanation (Qualify data/specify perched intervals if applicable) No evidence was found of perched groundwater near the well.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: Uncertain - the integrity of the clay seal could not be evaluated since no information was found on its composition and the method of installation. However, there is no evidence of perched or surface water in the area.

4) Gravel Pack. Does the well contain a gravel pack: (Yes X No _) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes X No _) Explanation A cement seal is installed above the gravel pack from 647 to 653 feet bls.

D. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X). (If no, proceed to section E)

The State of Idaho Well Construction Regulations and INEL Best Management Practices that overlap with RCRA guidelines and regulations will not be duplicated in this section.

1) Were the drill rig, equipment, casing and screen steam cleaned before drilling and installation: (Yes _ No _ No documentation _) Explanation _

2) Were drilling additives used: (Yes _ No _ Uncertain/No documentation _) Drilling Method _ Additive(s)/Quantity _

3) Are the casing (that portion which is within the sampling interval), the screen, the pump and the pump discharge pipe constructed of nonreactive material which does not affect/interfere with chemical, physical, biological or radiological constituents of interests: (Yes _ No _)

Material

Casing _____

Screen _____

Pump _____

Discharge Pipe _____

Explanation _____

4) Is the screen factory fabricated: (Yes _ No _ No screen _) Type _

5) Is the monitoring interval adequate to detect the contaminants of concern, i.e. "floaters", "sinkers" or dissolved constituents: (Yes _ No _) Explanation _

6) Is the monitoring interval greater than 30 feet in length: (Yes _ No _) or does the well monitor more than one type of lithology: (Yes _ No _) Monitoring interval _

7) Is the filter pack present: (Yes _ No _) If yes, is the filter pack comprised of chemically inert material: (Yes _ No _ Uncertain _ N/A _) Does it extend no more than 2 feet above screen: (Yes _ No _ N/A_) Filter pack type _ Filter pack interval _

8) Has the well been developed to ensure turbid free groundwater samples, i.e. <5 NTUs: (Yes _ No _ Not Documented _) and to restore the natural hydraulic conductivity of the formation, i.e. stabilization of parameters: (Yes _ No _ Not Documented _) Well development type and duration _

9) Is the pump intake location documented: (Yes _ No _) Depth _

10) Does the pump type collect representative ground-water samples: (Yes _ No _ Not Documented _) Type_ Explanation _

E. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: None

N.F. - Not Found/No Documentation
N/A - Not Applicable

FITNESS-FOR-USE CHECKLIST FOR AQUIFER AND PERCHED GROUNDWATER MONITORING/OBSERVATION WELLS

LOCATION: ARA Well Name/No. NTP-AREA 2

F. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: USGS Observation/State Regulations and INEL Best Management Practices

( ) Well complies with applicable regulations and is acceptable for intended use.
( ) Well complies with applicable regulations except for minor construction details and is acceptable for intended use.
(X) Well does not meet applicable regulations, a variance should be obtained. If variance not obtained, remediation is required to comply with the regulations.
( ) Well does not meet applicable regulations and intended use, remediation is required.
( ) Well does not meet applicable regulations and should not be used for this purpose.
( ) Insufficient/uncertain data is available to evaluate compliance to the regulations.
( ) Abandonment, well is unneeded or cannot be remediated.

Deficiencies: The integrity of the clay seal could not be evaluated because no information was found on its composition or method of emplacement. However, the well is located about 2 miles east of ARA, the nearest INEL facility, and is not in proximity to any other potential sources of surface or subsurface contamination. Since no evidence was found for perched water near the well and the potential for contaminant migration in the annulus is extremely low, a variance should be requested for the lack of an approved seal. Also, the casing thickness and joint type were not documented, which are minor deficiencies.

Remediation: None

GEOLOGIC LOG

Well Name NTP-AREA 2

Source: No Log Found

****

Interval (feet below surface)

Begin	End	Description

COMPILED BY/ORGANIZATION: J.M. Sabel / GAI Date August 20, 1992

WellName: NTP–AREA 2

03/11/1994

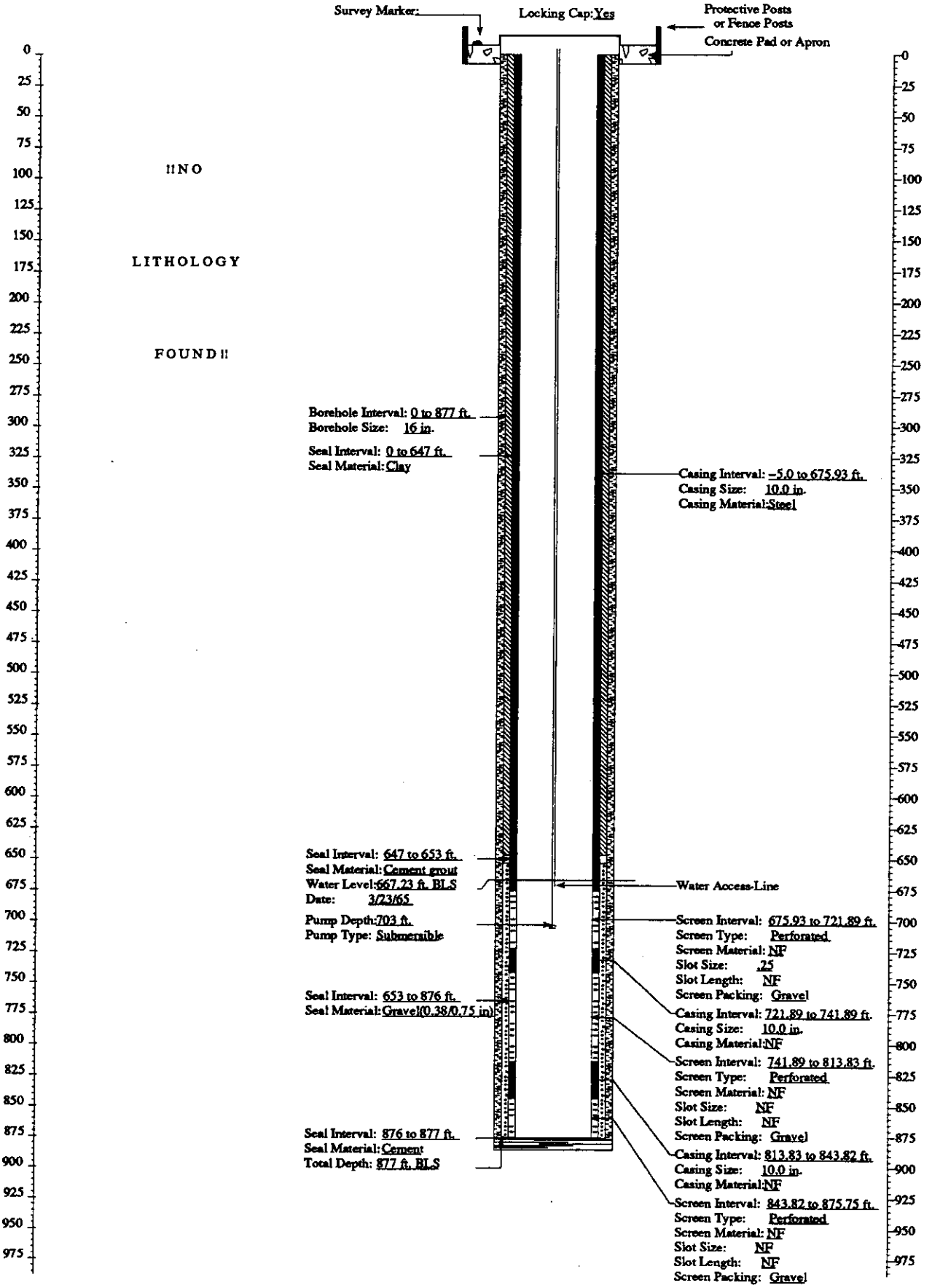
Facility: ARA
Well Type: Observation
Well Status: Active
Year Drilled: 1960
Total Depth: 877

Easting: 492257.864
Northing: 683139.405
Longitude: 1124705.3750
Latitude: 433222.29336
Completion Depth: 877

Driller: Cope/Andrew
Geologist: NF
Drilling Method: Cable Tooled
Drilling Fluid: NF
Land Surface: 5131.96

Water Level: 667.23
Water Level Date: 3/23/65
Water Level Access: Line

!!NO LITHOLOGY FOUND!!



FITNESS-FOR-USE CHECKLIST FOR INJECTION WELLS

LOCATION: CFA

Well Name/No. CFA DISPOSAL WELL

A. WELL USE

1) Year well was drilled: 1963

2) Current use for well:
( )DOE 5400.1 Monitoring
( )RCRA Monitoring ( )USGS Observation
( )CERCLA Characterization ( )No Documented Use
(X)Other: Surface water injection (flood control)

3) Constituents monitored currently: N.F.

4) Water level monitored: (Yes _ No X Insufficient data _)

5) Is the well used for USGS Observation: (Yes _ No X)

(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan:

7) Responsible organization/Contact person: Injection - EG&G / Gary Braun

B. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells are being resurveyed as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890). The project started in the summer of 1992.

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes _ No X) or Fence posts: (Yes X No _)
3) Concrete pad/apron present: (Yes _ No _ N/A X)
4) Does the well contain a survey marker: (Yes X No _)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No _ N/A X)
6) Based on location of well, is existing or planned surface completion adequate: (Yes _ No X) Explanation The well is located below grade in a covered

concrete pit. The well pit cover, which was not locked at the time of the field inspection, should be locked.

C. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ Insufficient Data _)
b) Access to measure water levels: (Yes X No _ Insufficient Data _)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes _ No _ N/A X)

b) If well is completed in alluvium, is borehole size at least 2 inches greater than the O.D. of casing: (Yes _ No _ N/A X
Borehole size _ Casing size _)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater:
(Yes X No _ N/A _)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to top of bedrock: (Yes _ No _ Uncertain X Borehole size >20-inch Casing size 20-inch)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet bls.)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Steel (Surface Casing)	20 (I.D. or O.D.)	4 - 10	None	Below Grade	N.F.	No

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Seal Material	Interval (feet bls.)	Mixture/Volumes	Material Approved by State of Idaho Regs.
N.F.	N.F.	N.F.	N.F.

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in the alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No Uncertain/Not documented X)

b) If the seal is documented, how was it emplaced (provide intervals if there was more than one grouting event): (N/A _ Uncertain/not documented X)

State of Idaho Reg. 3.3.1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No X) Explanation The well is located over 4000 feet south of the CFA landfills.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No _ Insufficient data X) Explanation (Qualify data/specify perched intervals if applicable) _

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: No, the well does not have a documented seal.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No _ Uncertain X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

D. THE WELL MUST COMPLY WITH IDAHO DEPARTMENT OF WATER RESOURCES "RULES AND REGULATIONS CONSTRUCTION AND USE OF INJECTION WELLS" (AUGUST 1984)

1) What is the class of the well with respect to Idaho State Regulations: Class V(a)

2) If the well is class V(a), does the well meet the minimum distance requirements (as shown below) from any well used to withdraw water for a beneficial purpose that could be harmed by contamination: (Yes _ No _ Uncertain X) Explanation No data were available on discharge rates since the well is a gravity-fed surface water drainage well and the rate of discharge is partially controlled by the build up of head from rainwater and snowmelt in the well pit, which has not occurred in years. Since the well is located about 1135 feet from the CFA-2 production well, the maximum average discharge rate should not be allowed to exceed 0.20 cfs.

DETERMINED RADII OF PERCHED WATER ZONES
BASED ON MAXIMUM AVERAGE WEEKLY DISCHARGE RATES

Discharge (cfs)	Radius of Generated Perched Water Zone (ft)
0-0.20	800
0.20-0.60	1,400
0.61-1.00	1,800
1.01-2.00	2,500
2.01-3.00	3,000
3.01-4.00	3,500
4.01-5.00	4,000
Greater than 5.00	To be computed by the director

*Discharge rates shall be based on the average volume of wastes discharged during the week of highest discharge from the well in an average water year.

F. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Compilation of Available Injection Well Information, EG&G, Reference #W38 (1987)

E. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: Injection Well/State Regulations and INEL Best Management Practices

( ) Well complies with applicable regulations and is acceptable for intended use.
( ) Well complies with applicable regulations except for minor construction details and is acceptable for intended use.
(X) Well does not meet applicable regulations, a variance should be obtained. If variance not obtained, remediation is required to comply with the regulations.
( ) Well does not meet applicable regulations and intended use, remediation is required.
( ) Well does not meet applicable regulations and should not be used for this purpose.
( ) Insufficient/uncertain data is available to evaluate compliance to the regulations.
( ) Abandonment, well is unneeded or cannot be remediated.

Deficiencies: The following deficiencies were noted with respect to Idaho State regulations. No surface or casing seals were installed during construction of this well. Considering the purpose and construction of the well for surface water injection, a variance should be requested for the lack of a surface seal. An estimate of the potential maximum discharge rate should be developed and used to assess compliance with the state's specified minimum distance between Class V(a) injection wells and potable wells. Additionally, the casing thickness and joint type were not documented and the casing does not extend above the ground as required.

Remediation: None

N.F. - Not Found/No Documentation
N/A - Not Applicable

GEOLOGIC LOG

Well Name CFA DISPOSAL WELL

Source: No Lithology Log Found

****

Interval (feet below surface)

Begin	End	Description

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date June 15, 1992

WellName: CFA DISPOSAL WELL

Facility: CFA
Well Type: Deep Injection
Well Status: Active
Year Drilled: 1963
Total Depth: 68

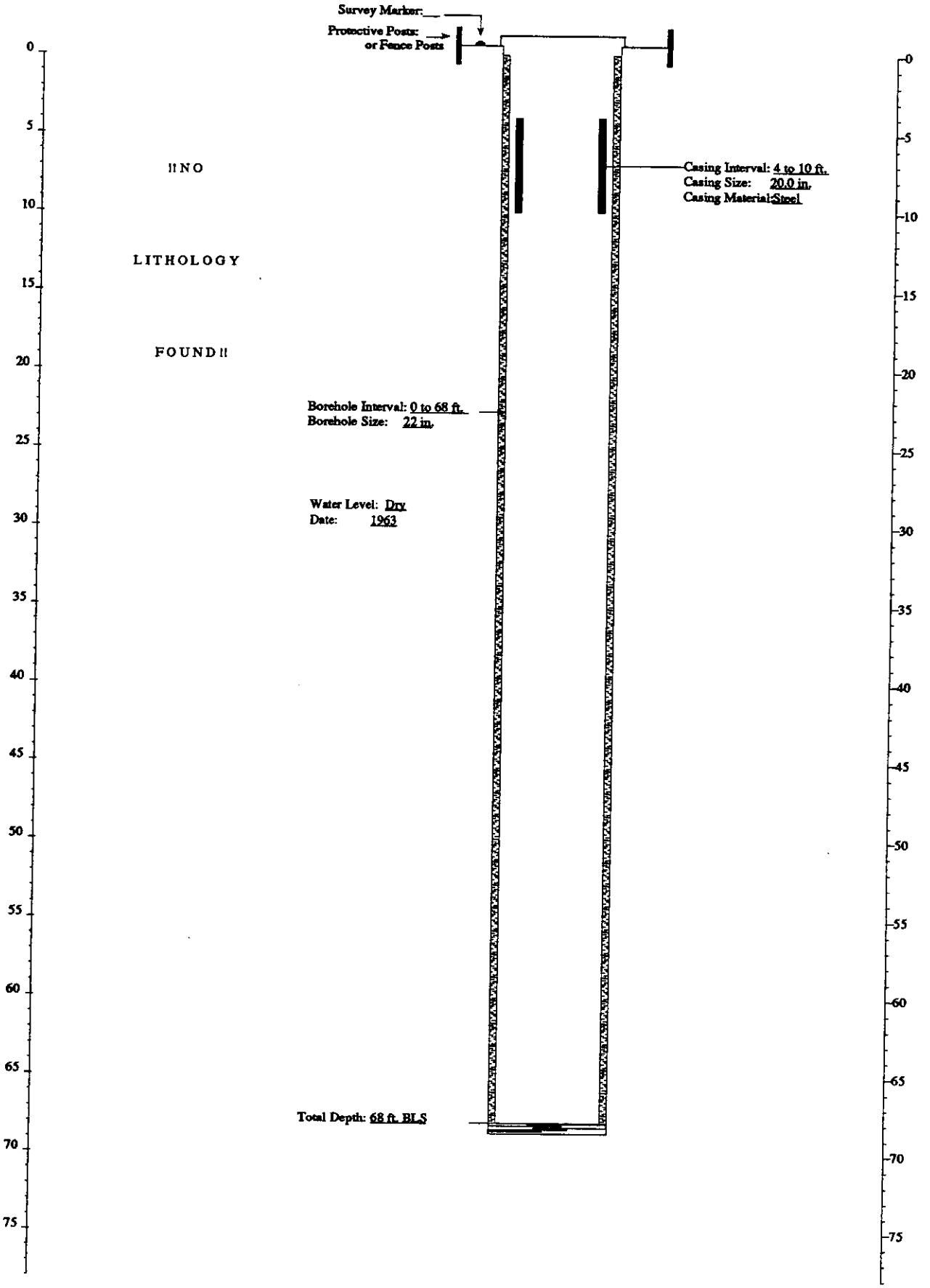
Correction: Well is located in a covered concrete pit.
Set BH bottom = 68 ft. (Original NF).

Easting: 449134.207
Northing: 678893.020
Longitude: 1125650.2721
Latitude: 433136.77500
Completion Depth: NF

Driller: NF
Geologist: NF
Drilling Method: NF
Drilling Fluid: NF
Land Surface: 4933.63

03/08/1994

Water Level: Dry
Water Level Date: NF
Water Level Access: NF



FITNESS-FOR-USE CHECKLIST POTABLE WATER/PRODUCTION WELL

LOCATION: CFA (Building CFA 651) | PAGE 1 of 9 | Well Name/No. CFA-1

A. WELL USE

1) Year well was drilled: 1943

2) Current use for well:
(X) Potable water production well
( ) Raw water production well

3) Well is: (X) Active ( ) Inactive

4) Program Plan: EG&G Drinking Water Monitoring Program

5) Responsible Organization/Contact Person: EG&G, Brad Andersen

6) Has a sanitary survey been performed on the drinking water system by the Idaho Department of Health and Welfare: (Yes X No _ Insufficient Data NA _) Date performed 12/5/90 Deficiencies reported relevant to scope of Fitness for Use Checklist / Corrective actions taken: At the time the sanitary survey was conducted the well was not plumbed to pump to waste, and the air relief valve needed to be screened. As of 2/3/93, the air relief valve was screened but the well had not been plumbed to pump to waste. However, Work Order 1476 has been issued and the well is scheduled to be modified in fiscal 1993. The well is currently located in a pit which is exempt from Idaho State regulation IDAPA 01.08550.02.l, but is planned to be modified during fiscal 1993 with the pump to waste system.

The following evaluation pertains to well construction and does not address the design of the distribution system outside of well house or water quality issues.

B. WELL MUST COMPLY WITH IDAHO DEPARTMENT OF HEALTH AND WELFARE RULES AND REGULATIONS, TITLE 1, CHAPTER 8, "IDAHO REGULATIONS FOR PUBLIC DRINKING WATER SYSTEMS", SPECIFICALLY SUBSECTION 01.08550 "STANDARDS FOR PUBLIC DRINKING WATER SYSTEMS." WELL MUST ALSO COMPLY WITH IDAHO DEPARTMENT OF WATER RESOURCES "RULES AND REGULATIONS WELL CONSTRUCTION STANDARDS" (JANUARY 1989). THESE CRITERIA WILL BE EVALUATED IN SECTION C.

In addition, the Department of Health and Welfare has adopted "Recommended Standards for Water Works" (Albany, New York, 1992). The criteria from this report not included in "State Regulations for Well Construction" will be discussed in Section D.

1) Well shall not be located in a pit. Is this criterion met: (Yes _ No X Insufficient Data _ N/A _)

2) Is a well house provided for this well: (Yes X No _ Insufficient Data _ N/A _) (If no, proceed to section 3)

   a) Well house shall be provided with a locking door. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

   b) Well house shall be protected from flooding and adequately drained. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _) Explanation: In an internal EG&G sanitary survey conducted on 11/5/91 and it identified that some grading was needed in the area of sump pump discharge.

   c) Floor drains shall not be connected to sewers, storm drains, or any other source of contamination. Is this criterion met: (Yes _ No X Insufficient Data _ N/A _) Explanation: The floor drain is connected to a sanitary sewer line but is protected by an air gap.

   d) Sumps for well house floor drains shall not be within 30 feet of the well. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: The well house sump discharges to sanitary sewer via an air gap.

   e) Well house shall not be used to store toxic or hazardous materials. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

3) Is the well constructed with a pitless adapter or pitless unit: (Yes _ No X Insufficient Data _ N/A _) (If no, proceed to Section 4)

   a) The unit shall be the type approved by the National Sanitation Division or Pitless Adaptor Division of the Water Systems Council. Is this criteria met: (Yes _ No _ Insufficient Data _ N/A _) Explanation: _

b) The unit shall be designed to be watertight including the well cap and casing extension. Is this criterion met:
(Yes _ No _ Insufficient Data _ N/A _) Explanation: _

c) The unit shall be tested for leaks prior to being put into service. Is this criterion met: (Yes _ No _ Insufficient Data _ N/A _) Explanation: _

4) Well must not be located within 50 or 100 feet of any potential source of contamination and no closer to specific sources of contamination than set forth below.

a) The well must not be within 50 feet of sewer lines. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

b) The well must not be within 50 feet of canals, streams, ditches, lakes, ponds and tanks used to store non-potable substances. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

c) The well must not be within 100 feet of a drainfield or a drainfield replacement area. Is this criterion met:
(Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

d) Is the well within 50 feet of contaminated perched water bodies:
(Yes _ No X Insufficient Data _ N/A _) Explanation: Review of the available documents and literature indicate that there are not any known perched water bodies in the vicinity of the CFA.

5) Well casing shall extend a minimum of 12 inches above the ground surface and 6 inches above the well house floor. Are these criteria met: (Yes _ No X Insufficient Data _ N/A _) Explanation: The well is located in a pit and as a result the well casing is not 12 inches above ground surface.

6) Well shall be vented with the open end screened and terminated downward at least 18 inches above the well house floor or ground surface. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

7) Well shall be equipped with the necessary valves and appurtenances to allow the well to be pumped to waste. Is this criterion met: (Yes _ No X Insufficient Data _ N/A _) Explanation: See A.6

8) A flow meter and sample tap shall be installed on discharge line. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

9) A pressure gauge shall be provided at all installations. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

10) Well shall be cased and sealed in such a manner that surface water can not enter the well and a watertight seal shall be provided at the top of the casing. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

C. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "RULES AND REGULATIONS WELL CONSTRUCTION STANDARDS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port which has a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ Insufficient Data _)
b) Access to measure water levels: (Yes X No _ Insufficient Data _)

2) Casing

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

a) If the well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes X No _ Insufficient Data _ N/A _) Explanation: The alluvium/basalt interface is at approximately 50 ft. bls., and 20-inch casing is installed from 0 ft through 70 ft. bls.

b) If the well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to top of bedrock: (Yes X No _ Borehole size inches 22 Casing size inches 20)

c) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

FITNESS-FOR-USE CHECKLIST POTABLE WATER/PRODUCTION WELL

LOCATION: CFA (Building CFA 651)

Well Name/No. CFA-1

State of Idaho 3.2.1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-coupled joints which shall be watertight or be approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3.2.2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480 which is a combination of Idaho State regulations for casing less than 6 inches in diameter and "Recommended Standards for Water Works" (1992) for casings greater than 26 inches in diameter.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 I.D.	6.625	.280
8	8.628	.322
10 I.D.	0.750	.365
12	12.750	.375
14	14.000	.375
16	16.000	.375
18	18.000	.375
20	20.000	.375
22	22.000	.500
24	24.000	.500
26	26.000	.500
28	28.000	.500
30	30.000	.500
32	32.000	.500
34	34.000	.500

Casing Type	Casing Diameter (inches)	Casing Interval (feet bls)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/State Regs. on Casing Thickness
Steel	20	6 - 70	N.F.	N/A	N.F.	N/A
Steel	16	6 - 444	N.F.	N/A	N.F.	N/A

3) Seal

State of Idaho Reg. 3.3.1. and 3.3.2.1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters.

Annular Fill Material	Interval (feet bls)	Mixture/Volumes	Material Approved by State of Idaho Regs.
N.F.	N/A	N/A	N/A

a) Does the surface seal extend at a minimum from ground surface to the top of bedrock (wells completed in bedrock): (Yes _ No _ Insufficient Data _ N/A X) Explanation: The installation of a surface seal was not identified in the available information and is assumed to be absent.

b) If the seal is documented, how was it emplaced (provide intervals if there was more than one grouting event):
(Yes _ No _ Insufficient Data _ N/A X) Explanation: N.R.

State of Idaho Reg. 3.3.1. The casing seal is to prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams, spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No X Insufficient Data _ N/A _) Explanation: None of the hydrologic features mentioned above are present in the vicinity of this well.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X Insufficient Data _ N/A _) Explanation (Qualify data/specify perched intervals if applicable): The geophysical logs did not indicate any saturated zones above the water table at the time they were taken (8/31/65). Additionally, see B,4,d.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes _ No X Insufficient Data _ N/A _) Explanation: The installation of a surface seal was not identified in the available information and is assumed to be absent.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ Insufficient Data _ N/A X)

D. WELL MUST COMPLY WITH "RECOMMENDED STANDARDS FOR WATER WORKS" (1992), A REPORT OF THE COMMITTEE OF THE GREAT LAKES-UPPER MISSISSIPPI RIVER BOARD OF STATE SANITARY ENGINEERS.

1) Does the well contain a packer that is in contact with the groundwater supply interval: (Yes _ No X Insufficient Data _ N/A _). If yes, is the packer comprised of materials that are toxic, will impair taste or odor, or facilitate bacterial contamination of the well water: (Yes _ No _ Packer Type _ N/A X)

2) Screen

a) Does the well contain perforated casing or a screen: (Yes _ No X Insufficient Data _ N/A _) If yes, the perforated screen or casing must be installed so that the pumping water level remains above it under operating conditions. The following determination was made from the available production water level data which will vary with changes in the static water levels (water table elevation); therefore, the following determination may not be valid under all conditions. Is the criterion met: (Yes _ No _ Insufficient Data _ N/A X) Explanation:This well is completed as an open borehole well, the casing is terminated at 444 ft. bls and the water level is at approximately 468 ft. bls.

b) Is the perforated casing or screen constructed of material resistant to damage by chemical action from the groundwater or cleaning operations: Material Type N/A Explanation: The well was constructed as an open hole without screen or perforated casing.

3) If the casing is constructed of nonferrous material, it must be resistant to the corrosiveness of the water. Is this criterion met:
(Yes _ No _ Insufficient Data _ N/A X)

4) Was the well adequately developed to remove native silts and clays, drilling mud or the finer fraction of the gravel pack: (Yes _ No _ Insufficient Data N/A X) Explanation: The well has been in use since 1943 and is sufficiently developed at this time. However, the well has no gravel pack.

E. **THE PRIMARY SOURCE FOR THE WELL EVALUATION IS THE IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY. OTHER SOURCES:** EG&G letter, BDA-60-92 From B. D. Andersen to M. B. Hinman, "Potential Contamination of Drinking Water Wells and Water Storage Tanks" dated 8/26/92. EG&G letter, REW-45-92 From R. E. Williams to J. R. Harper "Listing of Potable Water Wells Not In Compliance With State Standards." dated 4/22/92. Brad Andersen, Teresa Brock, and Dennis Walker, Personal Communication 2/3/93. WINCO, Draft Final "Groundwater Monitoring Plan for the Idaho Chemical Processing Plant", 1991. EG&G Internal Sanitary Survey Checklist, 11/5/91. Idaho Department of Health and Welfare, Division of Environmental Quality, Drinking Water Supply Report INEL/CFA, 12/5/90

N.F. Not Found
N/A Not Applicable
N.R. Not Required

FITNESS-FOR-USE CHECKLIST POTABLE WATER/PRODUCTION WELL

LOCATION: CFA (Building CFA 651) | PAGE 9 of 9 | Well Name/No. CFA-1

F. WELL FITNESS DETERMINATION

Intended use: PRODUCTION/POTABLE WELL

( ) Well is acceptable for intended use.
(X) Well is acceptable for intended use if a variance is granted.
( ) Maintenance required to continue intended use.
(X) Remediation required to continue intended use.
( ) Decommission, well is unneeded or cannot be remediated.

DEFICIENCIES: The well is not currently plumbed to pump to waste. There is no documentation that the well was constructed with either a surface or casing seal. However, there are no perched water bodies identified in the vicinity of the well and a variance could be obtained for the lack of a surface and casing seal. Additionally, the type of casing joints and the casing thickness are not documented in the available information.

REMEDIATION: The well is to be modified to pump to waste in fiscal 1993 under Work Order 1476. The well which complies with Idaho State Regulation, Subsection IDAPA 01.08550.02.1 will be brought above ground during fiscal 1993.

GEOLOGIC LOG

Well Name CFA-1

Source: Log from Copy of Driller's Log

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Interval (feet below surface)

Begin	End	Description
0	28	Surficial Alluvium
28	50	Basalt
50	59	Basalt / Clay / Sand
59	69	Clay and Sand
69	134	Basalt
134	139	Sand and Clay
139	169	Basalt
169	184	Cinders
184	291	Basalt
291	321	Basalt and Clay
321	341	Basalt
341	349	Clay
349	371	Basalt / Cinders / Clay
371	381	Clay
381	391	Basalt
391	414	Clay
414	425	Clay and Gravel
425	440	Cinders and Clay
440	562	Basalt

COMPILED BY/ORGANIZATION: T. Norton / GAI Date 12/7/92

GEOLOGIC LOG

Well Name CFA 1

Source: Log from Copy of Driller's Log

****

Interval (feet below surface)

Begin	End	Description
562	588	Basalt and Clay
588	665	Basalt
665	685	Basalt and Cinders

COMPILED BY/ORGANIZATION: T. Norton / GAI Date 12/7/92

WellName: CFA-1 Corrections: WELL IS LOCATED IN A WELL HOUSE

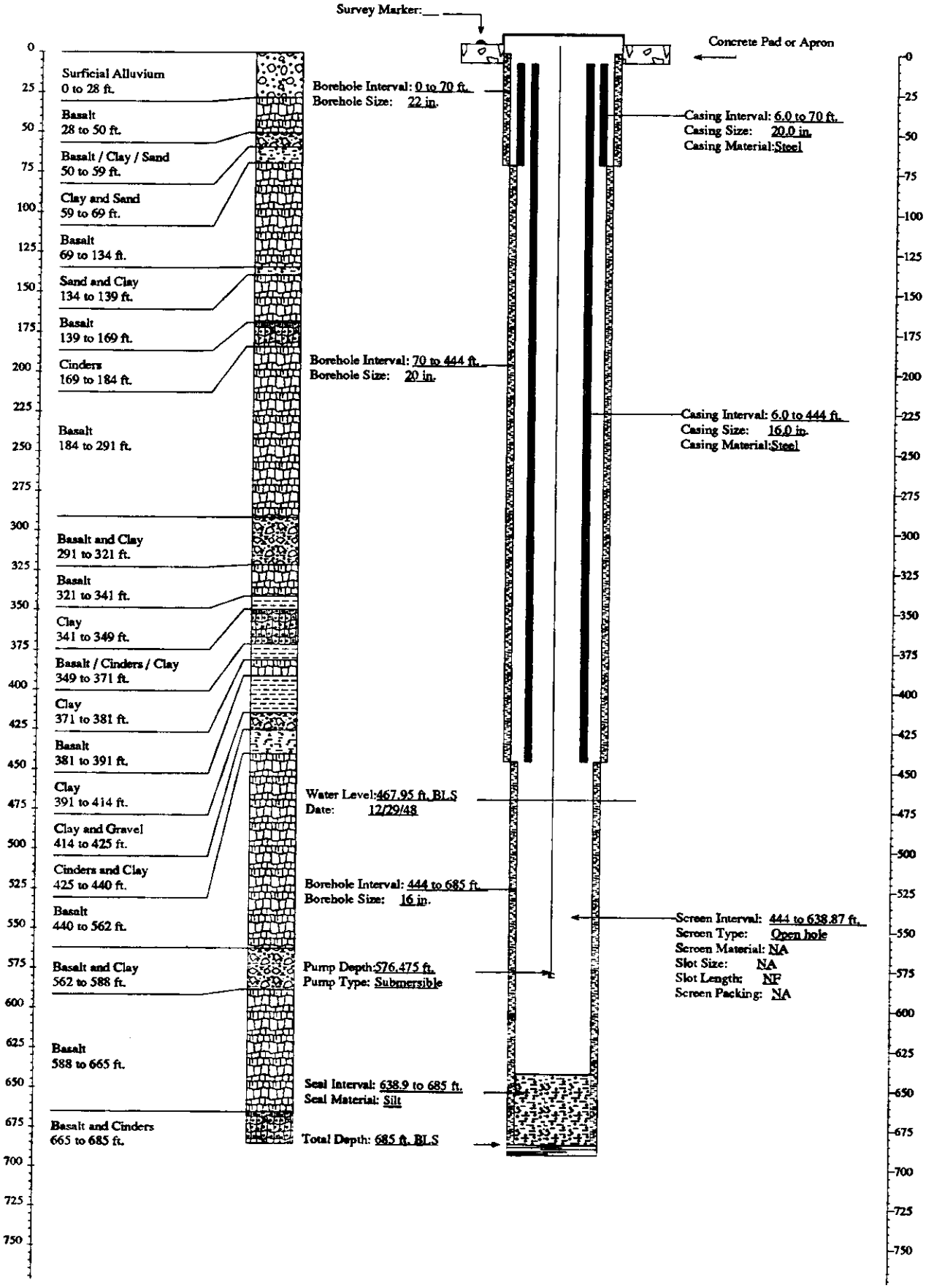
09/11/1993

Facility: CFA
Well Type: Potable Water Well
Well Status: Active
Year Drilled: 1943
Total Depth: 685

Easting: 295247.96
Northing: 681587.01
Longitude: 1125619.58
Latitude: 433203.68
Completion Depth: 638.87

Driller: Schoonover
Geologist: NF
Drilling Method: Cable tool
Drilling Fluid: NF
Land Surface: 4928.96

Water Level: 467.95
Water Level Date: 12/29/48
Water Level Access: NF



FITNESS-FOR-USE CHECKLIST POTABLE WATER/PRODUCTION WELL

LOCATION: CFA (Building CFA 642) | PAGE 1 of 9 | Well Name/No. CFA-2

A. WELL USE

1) Year well was drilled: 1944

2) Current use for well:
(X) Potable water production well
( ) Raw water production well

3) Well is: (X) Active ( ) Inactive

4) Program Plan: EG&G Drinking Water Monitoring Program

5) Responsible Organization/Contact Person: EG&G, Brad Andersen

6) Has a sanitary survey been performed on the drinking water system by the Idaho Department of Health and Welfare: (Yes X No _ Insufficient Data NA _) Date performed 12/5/90 Deficiencies reported relevant to scope of Fitness for Use Checklist / Corrective actions taken: At the time the sanitary survey was conducted the well was not plumbed to pump to waste, and the air relief valve needed to be screened. As of 2/3/93, the air relief valve was screened but the well had not been plumbed to pump to waste. However, Work Order 1475 has been issued and the well is scheduled to be modified in fiscal 1993. The well is currently located in a pit which is exempt from Idaho State regulation IDAPA, 01.08550.02.1 but is planned to be modified during fiscal 1993 with the pump to waste system.

The following evaluation pertains to well construction and does not address the design of the distribution system outside of well house or water quality issues.

B. WELL MUST COMPLY WITH IDAHO DEPARTMENT OF HEALTH AND WELFARE RULES AND REGULATIONS, TITLE 1, CHAPTER 8, "IDAHO REGULATIONS FOR PUBLIC DRINKING WATER SYSTEMS", SPECIFICALLY SUBSECTION 01.08550 "STANDARDS FOR PUBLIC DRINKING WATER SYSTEMS." WELL MUST ALSO COMPLY WITH IDAHO DEPARTMENT OF WATER RESOURCES "RULES AND REGULATIONS WELL CONSTRUCTION STANDARDS" (JANUARY 1989). THESE CRITERIA WILL BE EVALUATED IN SECTION C.

In addition, the Department of Health and Welfare has adopted "Recommended Standards for Water Works" (Albany, New York, 1992). The criteria from this report not included in "State Regulations for Well Construction" will be discussed in Section D.

1) Well shall not be located in a pit. Is this criterion met: (Yes _ No X Insufficient Data _ N/A _)

2) Is a well house provided for this well: (Yes X No _ Insufficient Data _ N/A _) (If no, proceed to section 3)

   a) Well house shall be provided with a locking door. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

   b) Well house shall be protected from flooding and adequately drained. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

   c) Floor drains shall not be connected to sewers, storm drains, or any other source of contamination. Is this criterion met: (Yes _ No X Insufficient Data _ N/A _) Explanation: The floor drains to a sump which is connected to a sewer line.

   d) Sumps for well house floor drains shall not be within 30 feet of the well. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: The well house sump discharges to the same sanitary sewer line as CFA 1 via an air gap.

   e) Well house shall not be used to store toxic or hazardous materials. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

3) Is the well constructed with a pitless adapter or pitless unit: (Yes _ No X Insufficient Data _ N/A _) (If no, proceed to Section 4)

   a) The unit shall be the type approved by the National Sanitation Division or Pitless Adaptor Division of the Water Systems Council. Is this criteria met: (Yes _ No _ Insufficient Data _ N/A _) Explanation: _

b) The unit shall be designed to be watertight including the well cap and casing extension. Is this criterion met:
(Yes _ No _ Insufficient Data _ N/A _) Explanation: _

c) The unit shall be tested for leaks prior to being put into service. Is this criterion met: (Yes _ No _ Insufficient Data _ N/A _) Explanation: _

4) Well must not be located within 50 or 100 feet of any potential source of contamination and no closer to specific sources of contamination than set forth below.

a) The well must not be within 50 feet of sewer lines. Is this criterion met: (Yes _ No X Insufficient Data _ N/A _) Explanation: A 4 inch sanitary sewer line is located within 20 ft. of the well house. The line is scheduled to be abandoned and capped off in the 1994 fiscal year.

b) The well must not be within 50 feet of canals, streams, ditches, lakes, ponds and tanks used to store non-potable substances. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

c) The well must not be within 100 feet of a drainfield or a drainfield replacement area. Is this criterion met:
(Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

d) Is the well within 50 feet of contaminated perched water bodies:
(Yes _ No X Insufficient Data _ N/A _) Explanation: Review of the available documents and literature indicate that there are not any known perched water bodies in the vicinity of the CFA.

5) Well casing shall extend a minimum of 12 inches above the ground surface and 6 inches above the well house floor. Are these criteria met: (Yes _ No X Insufficient Data _ N/A _) Explanation: The well is located in a pit, and as a result, the well casing is not 12 inches above the ground surface.

6) Well shall be vented with the open end screened and terminated downward at least 18 inches above the well house floor or ground surface. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

7) Well shall be equipped with the necessary valves and appurtenances to allow the well to be pumped to waste. Is this criterion met: (Yes _ No X Insufficient Data _ N/A _) Explanation: See A.6

8) A flow meter and sample tap shall be installed on discharge line. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

9) A pressure gauge shall be provided at all installations. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

10) Well shall be cased and sealed in such a manner that surface water can not enter the well and a watertight seal shall be provided at the top of the casing. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

C. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "RULES AND REGULATIONS WELL CONSTRUCTION STANDARDS" (1989)

1) Surface Completion

State of Idaho Reg. 3.2.1. The top of the casing shall be completely covered with a 1/4-inch thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3.11. The well shall be equipped with an access port which has a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ Insufficient Data _)
b) Access to measure water levels: (Yes X No _ Insufficient Data _)

2) Casing

State of Idaho Reg. 3.3.4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

a) If the well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes X No _ Insufficient Data _ N/A _) Explanation: The alluvium/basalt interface is at approximately 14 ft. bls., and 20-inch casing is installed from 6.1 ft through 68 ft. bls.

b) If the well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to top of bedrock: (Yes _ No X Borehole size inches 20 Casing size inches 20)

c) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho 3.2.1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-coupled joints which shall be watertight or be approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3.2.2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480 which is a combination of Idaho State regulations for casing less than 6 inches in diameter and "Recommended Standards for Water Works" (1992) for casings greater than 26 inches in diameter.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 I.D.	6.625	.280
8	8.628	.322
10 I.D.	0.750	.365
12	12.750	.375
14	14.000	.375
16	16.000	.375
18	18.000	.375
20	20.000	.375
22	22.000	.500
24	24.000	.500
26	26.000	.500
28	28.000	.500
30	30.000	.500
32	32.000	.500
34	34.000	.500

Casing Type	Casing Diameter (inches)	Casing Interval (feet bls)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/State Regs. on Casing Thickness
Steel	20	6.1 - 68	N.F.	N/A	N.F.	N/A
Steel(1)	16	6.1 - 681	N.F.	N/A	N.F.	N/A
(1) Casing perforated 521 to 651 feet bls and 661 to 681 feet bls.						

3) Seal

State of Idaho Reg. 3,3,1. and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters.

Annular Fill Material	Interval (feet bls)	Mixture/Volumes	Material Approved by State of Idaho Regs.
Gravel	6.1 - 681	N.F.	No

a) Does the surface seal extend at a minimum from ground surface to the top of bedrock (wells completed in bedrock): (Yes _ No X Insufficient Data _ N/A _) Explanation: The installation of a surface seal was not identified in the available information and is assumed to be absent.

b) If the seal is documented, how was it emplaced (provide intervals if there was more than one grouting event): (Yes _ No _ Insufficient Data _ N/A X) Explanation: N.R.

State of Idaho Reg. 3,3,1. The casing seal is to prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams, spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No X Insufficient Data _ N/A _) Explanation: None of the hydrologic features mentioned above are present in the vicinity of this well.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X Insufficient Data _ N/A _) Explanation (Qualify data/specify perched intervals if applicable): The geophysical logs did not indicate any saturated zones above the water table at the time they were taken (7/2/71).

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes _ No X Insufficient Data _ N/A _) Explanation: The installation of a surface seal was not identified in the available information and is assumed to be absent.

4) Gravel Pack. Does the well contain a gravel pack: (Yes X No _) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No X Insufficient Data N/A _) Explanation: The annular space is filled with gravel from 6.1 - 681 ft., however, there is no seal in the annulus.

D. WELL MUST COMPLY WITH "RECOMMENDED STANDARDS FOR WATER WORKS" (1992), A REPORT OF THE COMMITTEE OF THE GREAT LAKES-UPPER MISSISSIPPI RIVER BOARD OF STATE SANITARY ENGINEERS.

1) Does the well contain a packer that is in contact with the groundwater supply interval: (Yes _ No X Insufficient Data _ N/A _). If yes, is the packer comprised of materials that are toxic, will impair taste or odor, or facilitate bacterial contamination of the well water: (Yes _ No _ Packer Type _ N/A X)

2) Screen

a) Does the well contain perforated casing or a screen: (Yes X No Insufficient Data _ N/A _) If yes, the perforated screen or casing must be installed so that the pumping water level remains above it under operating conditions. The following determination was made from the available production water level data which will vary with changes in the static water levels (water table elevation); therefore, the following determination may not be valid under all conditions. Is the criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: The reported production water level is approximately 480 ft. bls., and the perforated casing is installed starting at 521 ft. bls, so the production water level is 40 ft. above the initial perforations.

b) Is the perforated casing or screen constructed of material resistant to damage by chemical action from the groundwater or cleaning operations: Material Type Steel Explanation: Steel is an acceptable well construction material for casing or screen in a non-acidic environment such as the Snake River Plain aquifer, as is demonstrated in EG&G report EGG-ER-8496.

3) If the casing is constructed of nonferrous material, it must be resistant to the corrosiveness of the water. Is this criterion met:
(Yes _ No _ Insufficient Data _ N/A X)

4) Was the well adequately developed to remove native silts and clays, drilling mud or the finer fraction of the gravel pack: (Yes X No _ Insufficient Data N/A _) Explanation: There is no documentation of well development in the available information for this well. However, the well has been in use since 1944 and is sufficiently developed at this time.

E. **THE PRIMARY SOURCE FOR THE WELL EVALUATION IS THE IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY. OTHER SOURCES:** EG&G letter, BDA-60-92 From B. D. Andersen to M. B. Hinman, "Potential Contamination of Drinking Water Wells and Water Storage Tanks" dated 8/26/1992. EG&G letter, REW-45-92 From R. E. Williams to J. R. Harper "Listing of Potable Water Wells Not In Compliance With State Standards." dated 4/22/92. Brad Andersen, Teresa Brock, and Dennis Walker, Personal Communication, 2-3-93. WINCO, Draft Final "Groundwater Monitoring Plan for the Idaho Chemical Processing Plant", 1991. EG&G Internal Sanitary Survey Checklist, 11/5/91

N.F. Not Found
N/A Not Applicable
N.R. Not Required

F. WELL FITNESS DETERMINATION

Intended use: PRODUCTION/POTABLE WELL

( ) Well is acceptable for intended use.
(X) Well is acceptable for intended use if a variance is granted.
( ) Maintenance required to continue intended use.
(X) Remediation required to continue intended use.
( ) Decommission, well is unneeded or cannot be remediated.

DEFICIENCIES: The well is not currently plumbed to pump to waste. The well was constructed by driving a 20 inch casing into a 20 inch borehole, consequently the well was constructed without either a surface or casing seal. However, there are no perched water bodies identified in the vicinity of the well and a variance could be obtained for the lack of a surface and casing seal. Additionally, the type of casing joints and the casing thickness are not documented in the available information.

REMEDIATION: The well is to be modified to pump to waste in fiscal 1993 under Work Order 1475. The well which complies with Idaho State regulation, IDAPA 01.08550.02.1 will be brought above ground during fiscal 1993.

GEOLOGIC LOG

Well Name CFA-2

Source: Driller's Log

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Interval (feet below surface)

Begin	End	Description
0	14	Surficial Alluvium
14	50	Basalt
50	66	Clay
66	135	Basalt
135	139	Clay / Sand / Gravel
139	159	Basalt
159	161	Cinders
161	192	Basalt
192	196	Basalt and Clay
196	348	Basalt
348	352	Cinders and Clay
352	385	Basalt
385	387	Cinders
387	493	Basalt
493	497	Sand and Cinders
497	525	Cinders and Basalt
525	550	Basalt
550	556	Cinders and Basalt
556	634	Basalt

COMPILED BY/ORGANIZATION: T. Norton / GAI Date 12/7/92

GEOLOGIC LOG

Well Name CFA 2

Source: Driller's Log

****

Interval (feet below surface)

Begin	End	Description
634	640	Clay and Basalt
640	660	Clay / Sand / Gravel
660	681	Basalt

COMPILED BY/ORGANIZATION: T. Norton / GAI Date 12/7/92

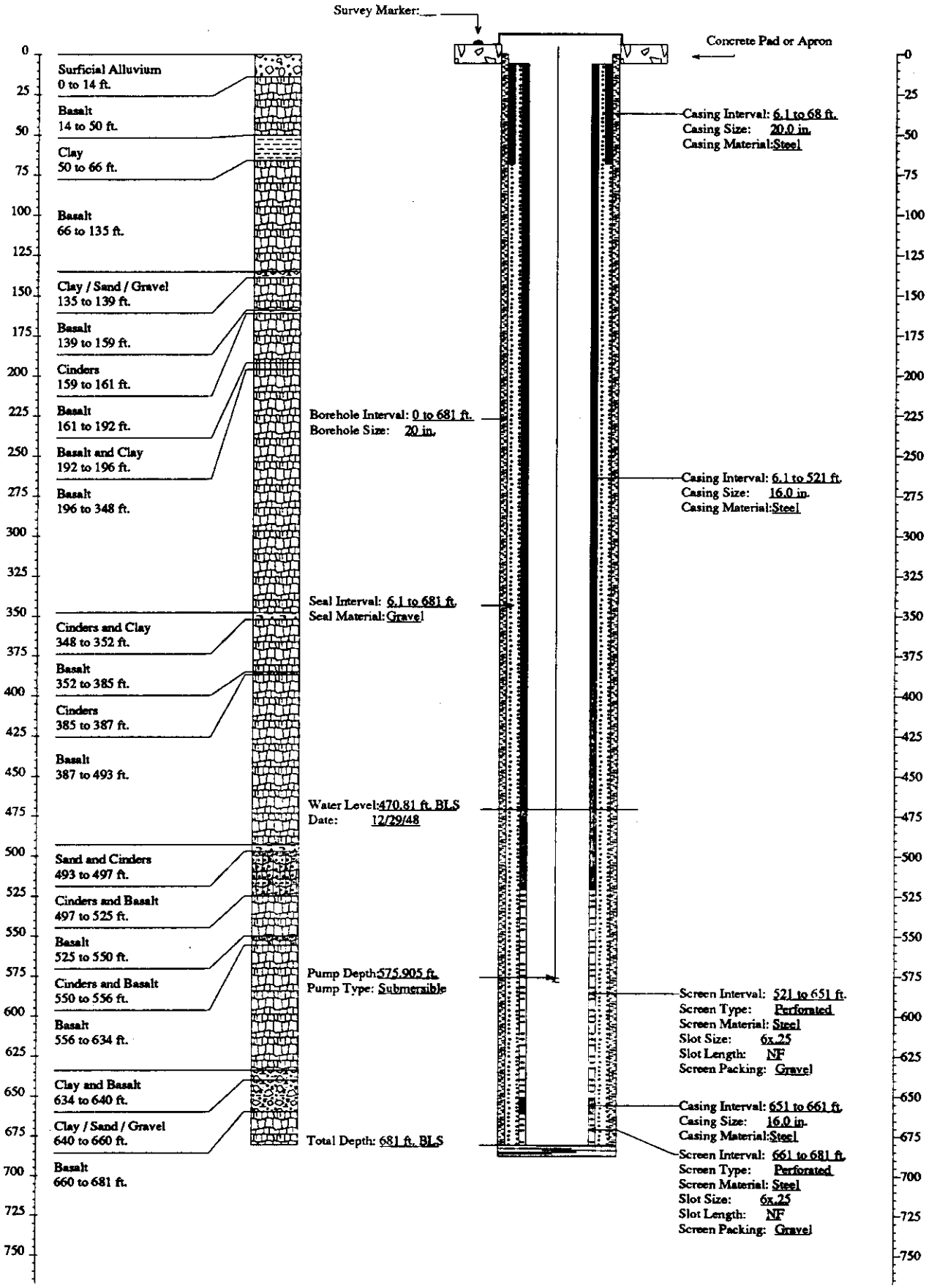
WellName: CFA-2 Corrections: WELL IS LOCATED IN A WELL HOUSE 03/01/1994

Facility: CFA
Well Type: Potable Water
Well Status: Active
Year Drilled: 1944
Total Depth: 681

Easting: 450037.74
Northing: 679576.67
Longitude: 1125638.0952
Latitude: 433143.61019
Completion Depth: 681

Driller: Roscoe Moss
Geologist: R. L. Nace
Drilling Method: Cable tooled
Drilling Fluid: NF
Land Surface: 4934.63

Water Level: 470.81
Water Level Date: 12/29/48
Water Level Access: NF



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: CFA | PAGE 1 of 7 | Well Name/No. LF2-01

A. WELL/BORING USE

1) Year drilled: 1987

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) RCRA Monitoring
( ) CERCLA Characterization
( ) Other :_
( ) USGS Observation
(X) No Documented Use

3) Constituents monitored currently: None

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: EG&G (WAG 4) / W.R. Pigott

B. WELL/BORING INFORMATION

1) Construction Category
( ) Surface Percolation Well
( ) Gas Port
( ) Neutron Access
(X) Scientific Instrumentation
  ( ) Radioactivity Monitoring
  (X) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
( ) None
(X) Vapor Sampler
( ) Gypsum Block
(X) Heat Dissipation Sensor
( ) Lysimeter
( ) Psychrometer
(X) Salinity Probe
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 27.2 ft. Top of basalt = 27.2 ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
( ) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes X No _) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes X No _)
4) Does the well contain a survey marker: (Yes X No _)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No _ N/A X)
6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _)

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes _ No _ N/A X)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes _ No _ N/A X Borehole size _ Casing size _)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Protective Cover (carbon steel)	10	0 - 1.6	None	16	.237	N/A

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Borehole Fill Material	Interval (feet)	Number of Bentonite Seals	Minimum-Maximum Seal Thickness (inches)
Open Interval (in protective cover)	0 - 1.5	N/A	N/A
Zones of Bentonite, Native Fill, and/or Silica Flour [1]	1.5 - 27.2	5	2 - 2
[1] These intervals are given on the construction diagram at the end of the checklist.			

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3,3,1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No _ N/A X) Explanation See Section d. below.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No _ N/A X) Explanation (Qualify data/specify perched intervals if applicable) The boring is instrumented in the alluvium, the base of which is commonly the first perched interval.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes X No _ N/A _) Explanation A thin layer of bentonite covers each instrumentation zone.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No _ N/A X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Shallow Drilling Report, Ansley 1988.

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: No Documented Use/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- (X) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- ( ) Boring is not sealed, but remediation is unnecessary.
- ( ) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The boring is completed in the alluvium and it is instrumented with soil monitoring equipment at one or more depths. The instrumented zones are filled with native fill or silica flour and separated by native fill and thin layers of bentonite. The boring is not a well as defined by the State of Idaho.

Deficiencies: None

Remediation: None

GEOLOGIC LOG

Well Name LF2-01

Source: Generalized Lithology Log

****

Interval (feet below surface)

Begin	End	Description
0	6.5	Silty Sand / Sand (No Data 1.5 - 5 ft.)
6.5	10	No Data
10	16.5	Sand with Gravel
16.5	20	No Data
20	21.5	Sandy Clay
21.5	23	No Data
23	27.2	Dense Clay (No Data 24.5 - 25 / 26.5 - 27.2)
27.2		Basalt

COMPILED BY/ORGANIZATION: T.L. Morgan / GAI Date December 15, 1992

WellName: LF2-01

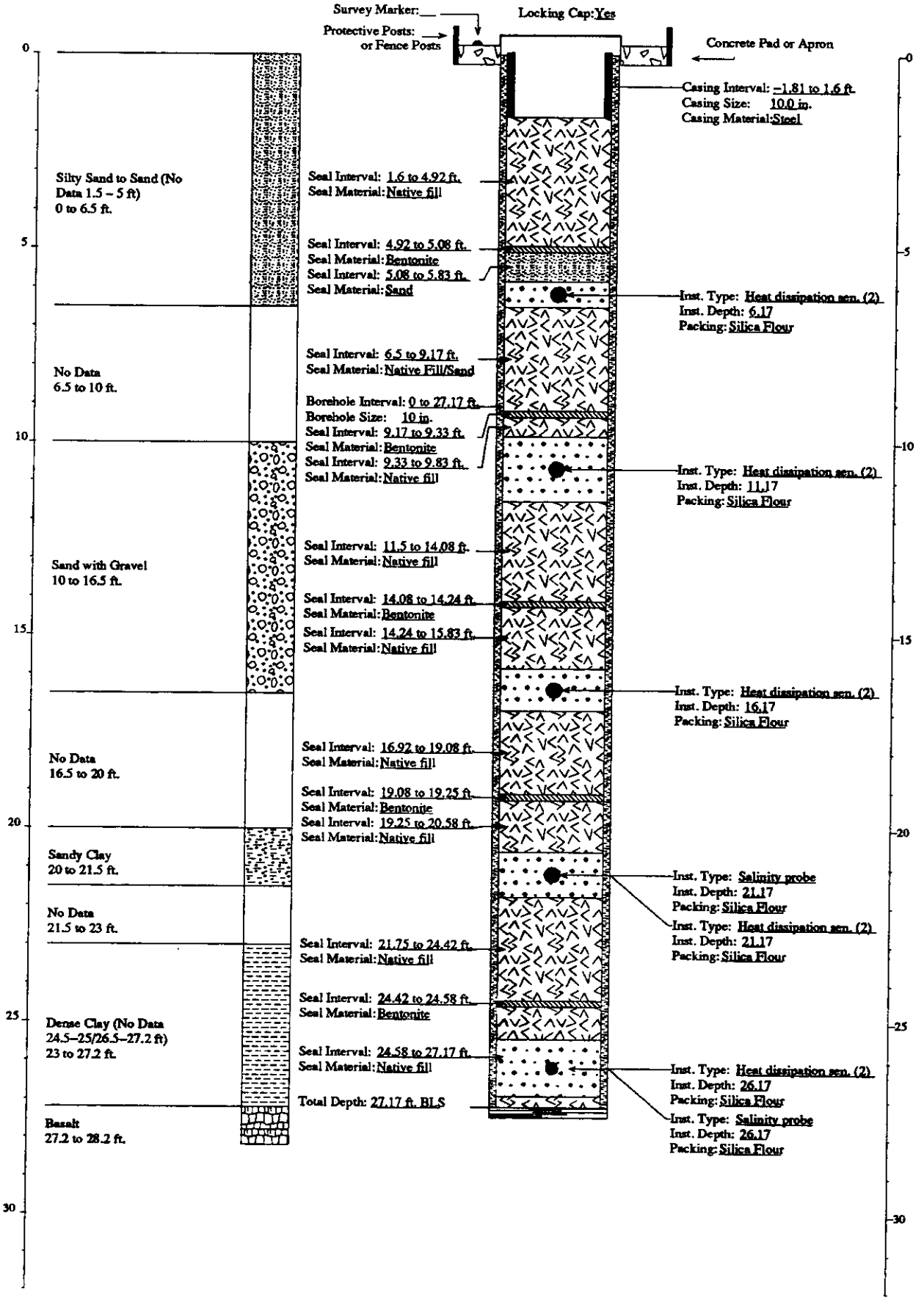
09/12/1993

Facility: CFA
Well Type: Scientific Instrumentation
Well Status: Inactive
Year Drilled: 1987
Total Depth: 27.17

Easting: 294431.90
Northing: 682893.30
Longitude: 1125630.82
Latitude: 433216.50
Completion Depth: NA

Driller: Demning
Geologist: J.Jaacks, B.Freier
Drilling Method: Augering
Drilling Fluid: NF
Land Surface: 4931.9

Water Level: NA
Water Level Date: NA
Water Level Access: NA



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: CFA | PAGE 1 of 7 | Well Name/No. LF2-02

A. WELL/BORING USE

1) Year drilled: 1987

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) RCRA Monitoring
( ) CERCLA Characterization
( ) Other :_
( ) USGS Observation
(X) No Documented Use

3) Constituents monitored currently: None

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: EG&G (WAG 4) / W.R. Pigott

B. WELL/BORING INFORMATION

1) Construction Category
( ) Surface Percolation Well
( ) Gas Port
( ) Neutron Access Port
(X) Scientific Instrumentation
  ( ) Radioactivity Monitoring
  (X) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
( ) None
(X) Vapor Sampler
( ) Gypsum Block
(X) Heat Dissipation Sensor
( ) Lysimeter
( ) Psychrometer
(X) Salinity Probe
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 31 ft. Top of basalt = 31 ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
( ) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes X No _) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes X No _)
4) Does the well contain a survey marker: (Yes X No _)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No _ N/A X)
6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _)

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes _ No _ N/A X)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes _ No _ N/A X Borehole size _ Casing size _)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Protective Cover (carbon steel)	10	0 - 1.6	None	16	.237	N/A

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Borehole Fill Material	Interval (feet)	Number of Bentonite Seals	Minimum-Maximum Seal Thickness (inches)
Open Interval (in protective cover)	0 - 1.5	N/A	N/A
Zones of Bentonite, Native Fill, and/or Silica Flour [1]	1.5 - 31	5	2 - 4
[1] These intervals are given on the construction diagram at the end of the checklist.			

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3,3,1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No _ N/A X) Explanation See Section d. below.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X N/A _) Explanation (Qualify data/specify perched intervals if applicable) The boring is instrumented in the alluvium, the base of which is commonly the first perched interval.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes X No _ N/A _) Explanation A thin layer of bentonite covers each instrumentation zone.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No _ N/A X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Shallow Drilling Report, Ansley, 1988.

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: No Documented Use/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- (X) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- ( ) Boring is not sealed, but remediation is unnecessary.
- ( ) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The boring is completed in the alluvium and it is instrumented with soil monitoring equipment at one or more depths. The instrumented zones are filled with native fill or silica flour and separated by native fill and thin layers of bentonite. The boring is not a well as defined by the State of Idaho.

Deficiencies: None

Remediation: None

GEOLOGIC LOG

Well Name LF2-02

Source: Generalized Lithology Log

****

Interval (feet below surface)

Begin	End	Description
0	16.5	Sand / Gravel (No Data 1.5-5 / 6.5-10 / 11.5-15)
16.5	20	No Data
20	21.5	Sand
21.5	23	No Data
23	24.5	Sand with Gravel
24.5	25	No Data
25	31	Clay (No Data 26.5-29 / 29-30.5)
31		Black Vesicular Basalt

COMPILED BY/ORGANIZATION: T.L. Morgan / GAI Date December 15, 1992

WellName: LF2–02

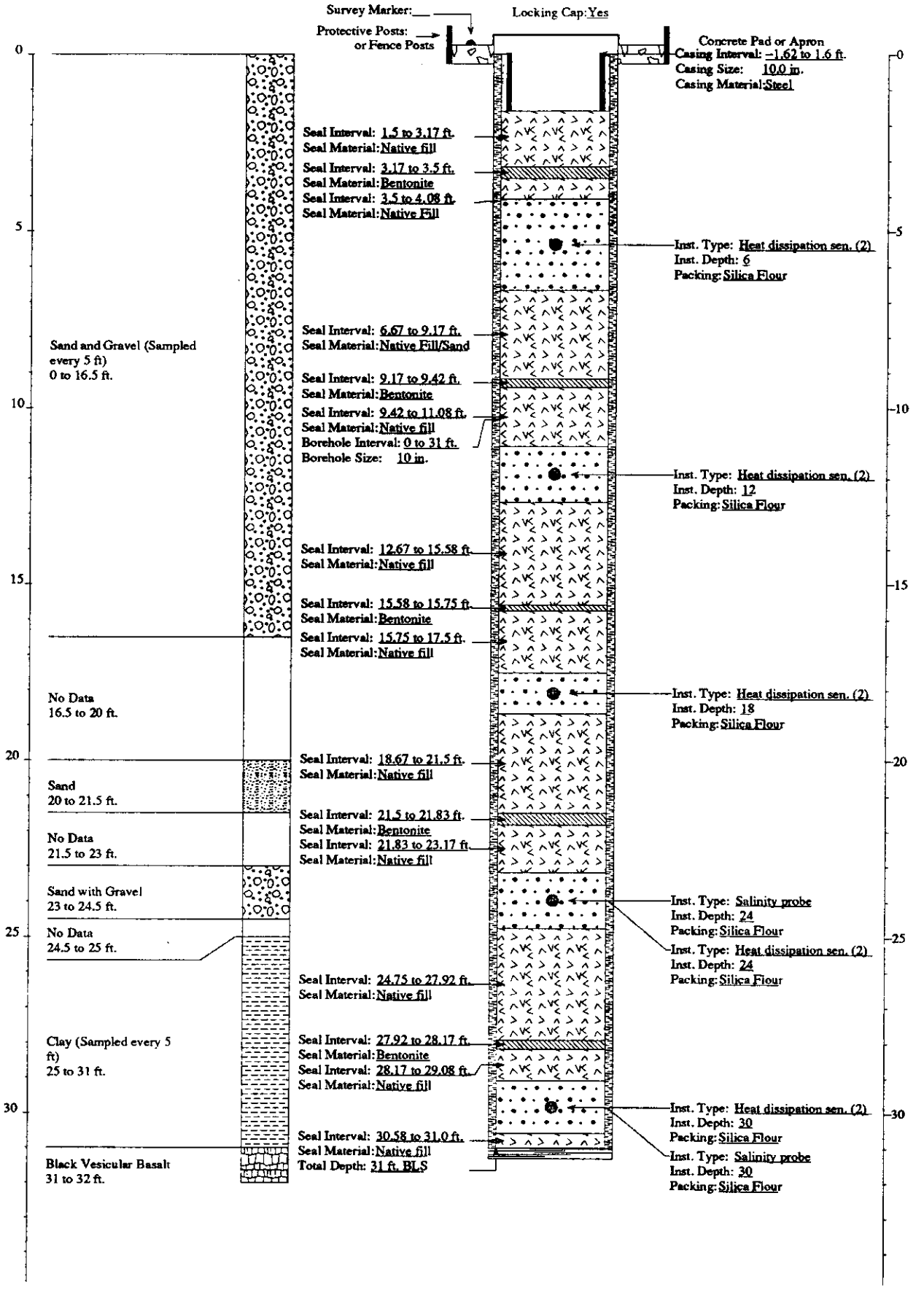
07/07/1993

Facility: CFA
Well Type: Scientific Instrumentation
Well Status: Inactive
Year Drilled: 1987
Total Depth: 31

Easting: 294010.20
Northing: 683042.40
Longitude: 1125636.57
Latitude: 433217.94
Completion Depth: NA

Driller: Denning
Geologist: J.Jaacks, B.Freier
Drilling Method: Augering
Drilling Fluid: NF
Land Surface: 4933.1

Water Level: NA
Water Level Date: NA
Water Level Access: NA



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS/BORINGS

LOCATION: CFA | PAGE 1 of 7 | Well Name/No. LF2-03

A. WELL/BORING USE

1) Year drilled: 1987

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) RCRA Monitoring
( ) CERCLA Characterization
( ) Other: _
( ) USGS Observation
(X) No Documented Use

3) Constituents monitored currently: None

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: EG&G (WAG 4) / W.R. Pigott

B. WELL/BORING INFORMATION

1) Construction Category
( ) Surface Percolation Well
( ) Gas Port
(X) Neutron Access
( ) Scientific Instrumentation
( ) Radioactivity Monitoring
( ) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
(X) None
( ) Vapor Sampler
( ) Gypsum Block
( ) Heat Dissipation Sensor
( ) Lysimeter
( ) Psychrometer
( ) Salinity Probe
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 23 ft. Top of basalt = N.F. ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
( ) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes X No _) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes X No _)
4) Does the well contain a survey marker: (Yes X No _)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No _ N/A X)
6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _) Explanation _

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes X No _ N/A _)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes _ No X N/A Borehole size 0.56-inch Casing size 0.56-inch Drilling method: Percussion hammer)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Carbon steel [1]	0.56 I.D. or O.D.?	0 - 23	None	N.F.	.237	Yes

[1] The pipe has no perforations and is capped at the top and bottom.

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Fill Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
None	N/A	N/A	N/A

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3,3,1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams, spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No _ N/A X) Explanation See Section d. below.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No _ N/A X) Explanation (Qualify data/specify perched intervals if applicable) The neutron access port is completed in the alluvium, the base of which is commonly the first perched interval.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes _ No _ N/A X) Explanation Since the neutron access tube was pounded into permeable alluvium, it should not promote vertical fluid migration.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS/BORINGS

LOCATION: CFA | PAGE 6 of 7 | Well Name/No. LF2-03

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Shallow Drilling Report, Ansley, 1988.

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: No Documented Use/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- ( ) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- (X) Boring is not sealed, but remediation is unnecessary.
- ( ) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The neutron access tube is constructed of 0.56-inch unperforated carbon steel pipe capped at the bottom and top. It was driven into the alluvium using a percussion hammer. The tube is used for monitoring the moisture content in the alluvium and is not a well as defined by the State of Idaho.

Deficiencies: None

Remediation: None

GEOLOGIC LOG

Well Name LF2-03

Source: Construction Data

****

Interval (feet below surface)

Begin	End	Description
0	23	Alluvium

COMPILED BY/ORGANIZATION: T.L. Morgan / GAI Date March 9, 1993

WellName: LF2-03

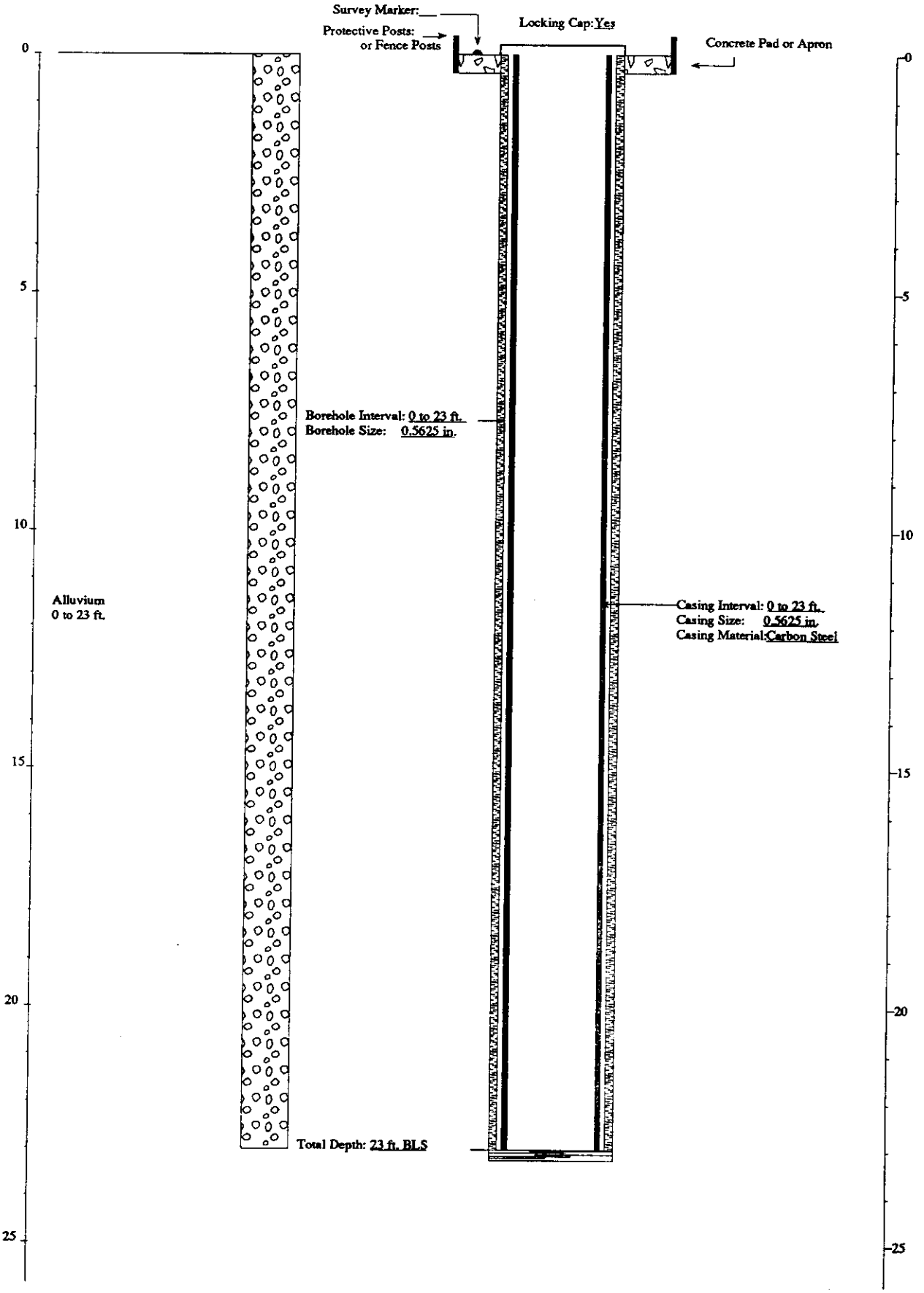
06/14/1993

Facility: CFA
Well Type: Neutron Access
Well Status: Inactive
Year Drilled: 1987
Total Depth: 23

Easting: 294420.60
Northing: 682893.70
Longitude: 1125630.98
Latitude: 433216.50
Completion Depth: NA

Driller: Denning
Geologist: NF
Drilling Method: Percussion Hammer
Drilling Fluid: NF
Land Surface: 4932.20

Water Level: NA
Water Level Date: NA
Water Level Access: NA



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: CFA | PAGE 1 of 7 | Well Name/No. LF2-04

A. WELL/BORINGS USE

1) Year drilled: 1987

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) RCRA Monitoring
( ) CERCLA Characterization
( ) Other: _
( ) USGS Observation
(X) No Documented Use

3) Constituents monitored currently: None

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: EG&G (WAG 4) / W.R. Pigott

B. WELL/BORING INFORMATION

1) Construciton Category
( ) Surface Percolation Well
( ) Gas Port
(X) Neutron Access
( ) Scientific Instrumentation
( ) Radioactivity Monitoring
( ) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
(X) None
( ) Vapor Sampler
( ) Gypsum Block
( ) Heat Dissipation Sensor
( ) Lysimeter
( ) Psychrometer
( ) Salinity Probe
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 22.7 ft. Top of basalt = N.F. ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
( ) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes X No _) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes X No _)
4) Does the well contain a survey marker: (Yes X No _)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No _ N/A X)
6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _) Explanation _

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes X No _ N/A _)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes _ No X N/A Borehole size 0.56-inch Casing size 0.56-inch Drilling method Percussion hammer)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Carbon steel (1)	0.56 I.D. or O.D.?	0 - 22.7	None	N.F.	.237	Yes

(1) The pipe has no perforations and is capped at the top and bottom.

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Fill Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
None	N/A	N/A	N/A

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3.3.1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams, spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No _ N/A X) Explanation See Section d. below.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No _ N/A X) Explanation (Qualify data/specify perched intervals if applicable) The neutron access tube is completed in the alluvium, the base of which is commonly the first perched interval.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes _ No _ N/A X) Explanation Since the monitoring tube was pounded into permeable alluvium, it should not promote vertical fluid migration.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Shallow Drilling Report, Ansley, 1988.

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: No Documented Use/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- ( ) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- (X) Boring is not sealed, but remediation is unnecessary.
- ( ) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The neutron access tube is constructed of 0.56-inch unperforated carbon steel pipe capped at the bottom and top. It was driven into the alluvium using a percussion hammer. The tube is used for monitoring the moisture content in the alluvium and is not a well as defined by the State of Idaho.

Deficiencies: None

Remediation: None

GEOLOGIC LOG

Well Name LF2-04

Source: Construction Data

****

Interval (feet below surface)

Begin	End	Description
0	22.7	Alluvium

COMPILED BY/ORGANIZATION: T.L. Morgan / GAI Date March 9, 1993

WellName: LF2–04

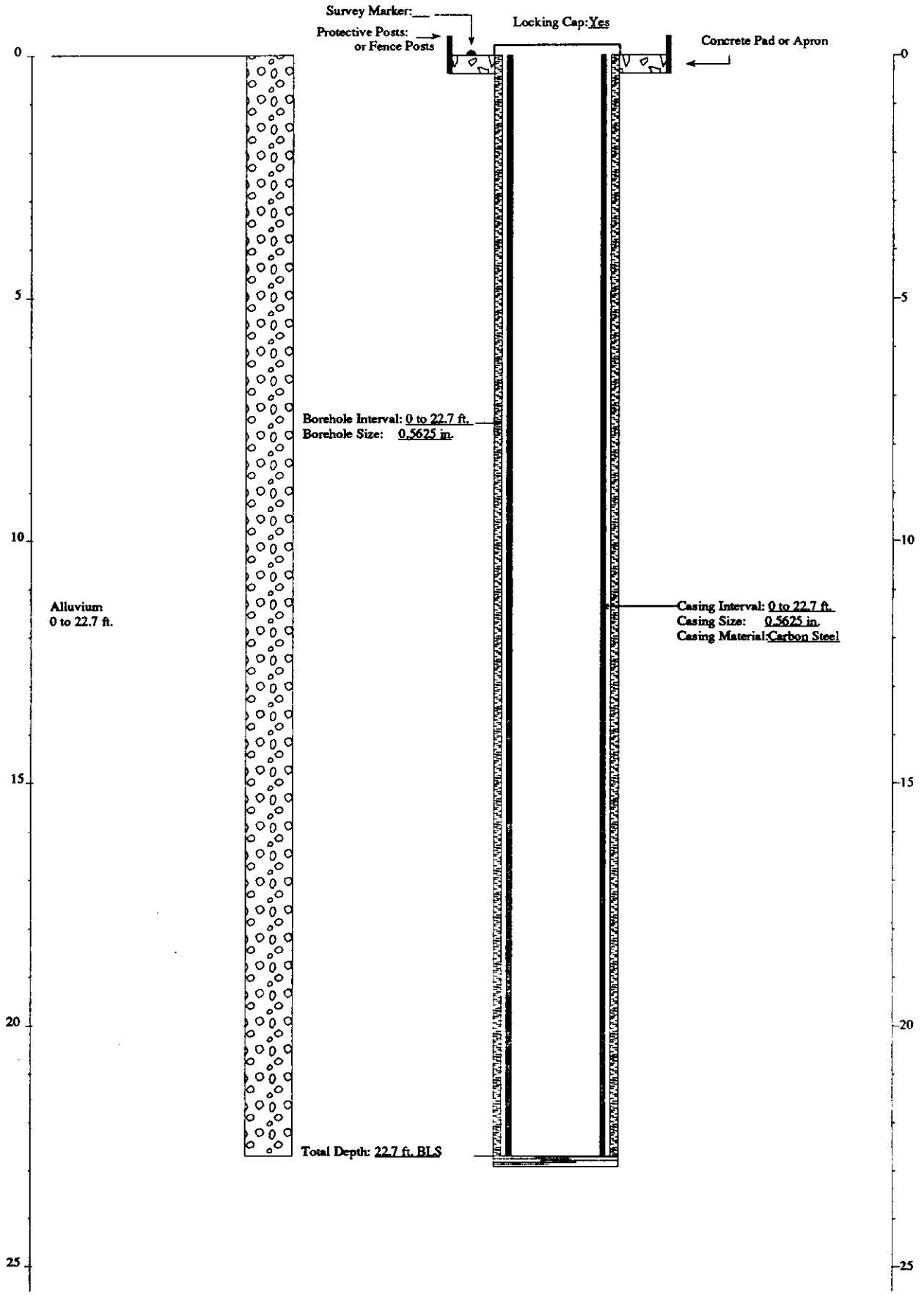
06/14/1993

Facility: CFA
Well Type: Neutron Access
Well Status: Inactive
Year Drilled: 1987
Total Depth: 22.7

Easting: 294011.00
Northing: 683051.10
Longitude: 1125636.56
Latitude: 433218.02
Completion Depth: NA

Driller: Denning
Geologist: NF
Drilling Method: Percussion Hammer
Drilling Fluid: NF
Land Surface: 4933.26

Water Level: NA
Water Level Date: NA
Water Level Access: NA



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: CFA | PAGE 1 of 7 | Well Name/No. LF2-05

A. WELL/BORING USE

1) Year drilled: 1987

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) RCRA Monitoring
( ) CERCLA Characterization
( ) Other :_
( ) USGS Observation
(X) No Documented Use

3) Constituents monitored currently: N.F.

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: EG&G (WAG 4) / W.R. Pigott

B. WELL/BORING INFORMATION

1) Construction Category
( ) Surface Percolation Well
( ) Gas Port
( ) Neutron Access Port
(X) Scientific Instrumentation
  ( ) Radioactivity Monitoring
  (X) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
( ) None
(X) Vapor Sampler
( ) Gypsum Block
(X) Heat Dissipation Sensor
( ) Lysimeter
( ) Psychrometer
(X) Salinity Probe
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 23.5 ft. Top of basalt = N.F. ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
( ) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes X No _) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes X No _)
4) Does the well contain a survey marker: (Yes X No _)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No _ N/A X)
6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _)

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes X No _ N/A _)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes X No _ N/A Borehole size ≥5-inch Casing size 5-inch Drilling Method Casing driven)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3.2.1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3.2.2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Protective Cover (carbon steel)	10	0 - 1	None	21	N.F.	N/A
Carbon Steel	5	0 - 20.5	N.F.	N.F.	N.F.	N.F.

3) Seal

State of Idaho Reg. 3.3.1 and 3.3.2.1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Fill Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
Native Fill (outside casing)	0 - 19	Sieved Auger Cuttings	N/A
Bentonite (inside casing)	1.5 - 19	N.F.	Yes
Native Fill	19 - 20	N.F.	N/A
Silica Flour/Silica Sand	20 - 22.9	50-50 Mix	N/A
Native Fill	22.9 - 23.5	N/A	N/A

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3.3.1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams, spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes X No _ N/A _) Explanation The boring was instrumented below CFA Landfill II.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No _ Uncertain/Not Documented X N/A _)

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes _ No _ N/A X) Explanation The casing was drilled through landfill waste which can not be effectively sealed.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: CFA Well Name/No. LF2-05

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Shallow Drilling Report, Ansley, 1988.

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: No Documented Use/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- ( ) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- (X) Boring is not sealed, but remediation is unnecessary.
- ( ) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The boring is instrumented with soil monitoring equipment below CFA Landfill II. The instrumented zone is filled with silica flour and sand while the equipment lines through the landfill waste are protected inside a 4-inch carbon steel casing filled with bentonite. The boring is not a well as defined by the State of Idaho.

Deficiencies: None

Remediation: None

GEOLOGIC LOG

Well Name LF2-05

Source: EG&G Construction Diagram

****

Interval (feet below surface)

Begin	End	Description
0	20	Landfill Waste
20	21.6	Sediment

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date August 14, 1992

WellName: LF2-05

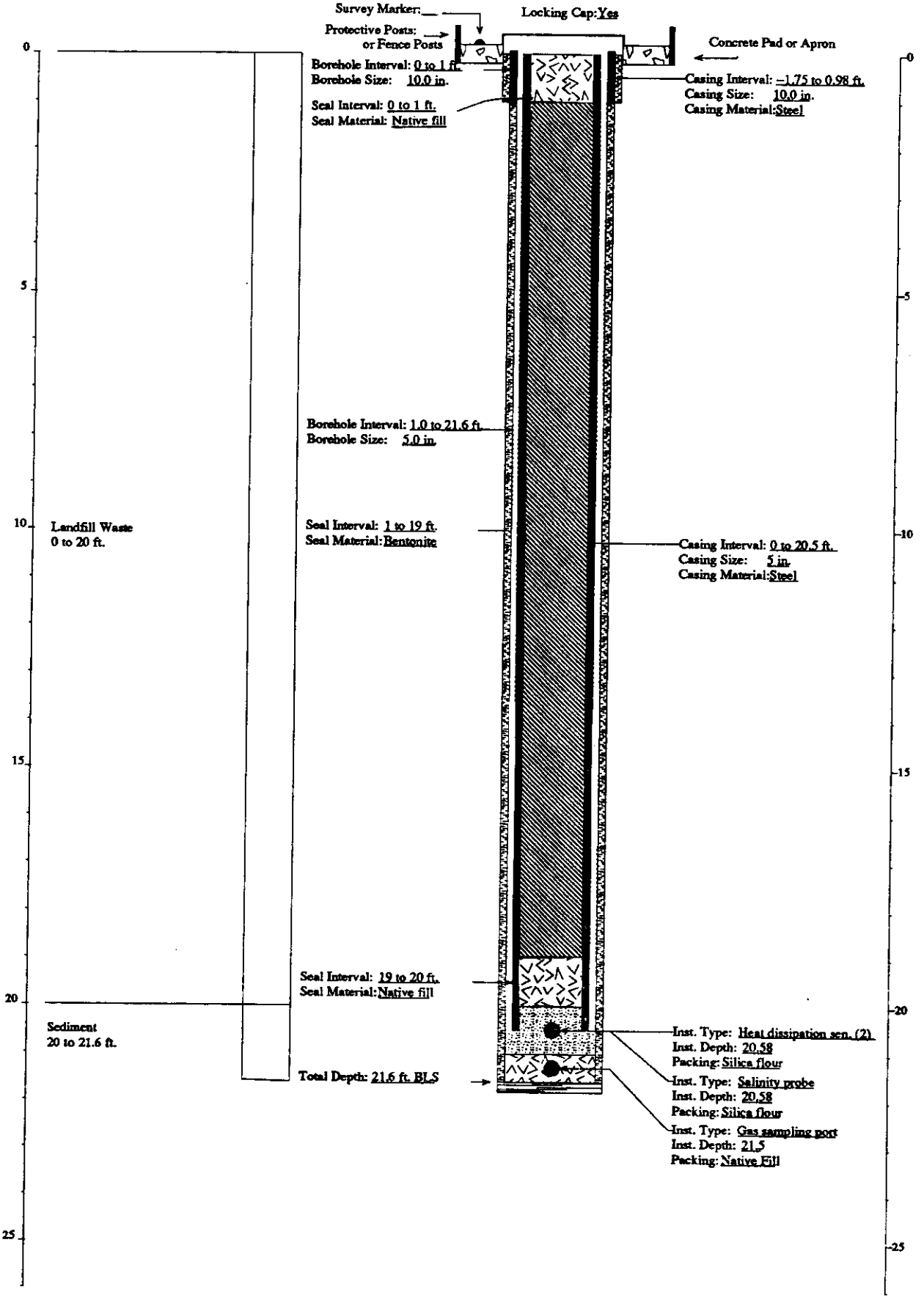
09/12/1993

Facility: CFA
Well Type: Scientific Instrumentation
Well Status: Inactive
Year Drilled: 1987
Total Depth: 21.6

Easting: 294589.20
Northing: 683235.50
Longitude: 1125628.73
Latitude: 433219.90
Completion Depth: NA

Driller: Denning
Geologist: NF
Drilling Method: Percussion hammer
Drilling Fluid: NF
Land Surface: 4929.8

Water Level: NA
Water Level Date: NA
Water Level Access: NA



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: CFA | PAGE 1 of 7 | Well Name/No. LF2-06

A. WELL/BORING USE

1) Year drilled: 1987

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) RCRA Monitoring
( ) CERCLA Characterization
( ) Other :_
( ) USGS Observation
(X) No Documented Use

3) Constituents monitored currently: N.F.

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: EG&G (WAG 4) / W.R. Pigott

B. WELL/BORING INFORMATION

1) Construction Category
( ) Surface Percolation Well
( ) Gas Port
( ) Neutron Access Port
(X) Scientific Instrumentation
  ( ) Radioactivity Monitoring
  (X) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
( ) None
(X) Vapor Sampler
( ) Gypsum Block
(X) Heat Dissipation Sensor
( ) Lysimeter
( ) Psychrometer
(X) Salinity Probe
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 19.3 ft. Top of basalt = N.F. ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
( ) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes X No _) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes X No _)
4) Does the well contain a survey marker: (Yes X No _)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No _ N/A X)
6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _)

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes X No _ N/A _)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes X No _ N/A Borehole size >4-inch Casing size 4-inch Drilling Method Casing driven)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Protective Cover (carbon steel)	10	0 - 1.3	None	26	N.F.	N/A
Carbon Steel	4	0 - 17.6	N.F.	N.F.	N.F.	N.F.

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Fill Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
Native Fill (outside casing)	0 - 17	Sieved Auger Cuttings	N/A
Bentonite (inside casing)	1.5 - 17	N.F.	Yes
Caved Material	17 - 17.8	N/A	N/A
Silica Flour/Silica Sand	17.8 - 18.8	50-50 Mix	N/A
Native Fill	18.8 - 19.3	N/A	N/A

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3,3,1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams, spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes X No _ N/A _) Explanation The boring was instrumented below CFA Landfill II.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No _ Uncertain/Not Documented X N/A _)

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes _ No _ N/A X) Explanation The casing was drilled through landfill waste which can not be effectively sealed.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: CFA | PAGE 6 of 7 | Well Name/No. LF2-06

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Shallow Drilling Report, Ansley, 1988.

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: No Documented Use/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- ( ) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- (X) Boring is not sealed, but remediation is unnecessary.
- ( ) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The boring is instrumented with soil monitoring equipment below CFA Landfill II. The instrumented zone is filled with silica flour and sand while the equipment lines through the landfill waste are protected inside a 4-inch carbon steel casing filled with bentonite. The boring is not a well as defined by the State of Idaho.

Deficiencies: None

Remediation: None

GEOLOGIC LOG

Well Name LF2-06

Source: EG&G Construction Diagram

****

Interval (feet below surface)

Begin	End	Description
0	17.5	Landfill Waste
17.5	19.3	Sediments

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date August 14, 1992

WellName: LF2-06

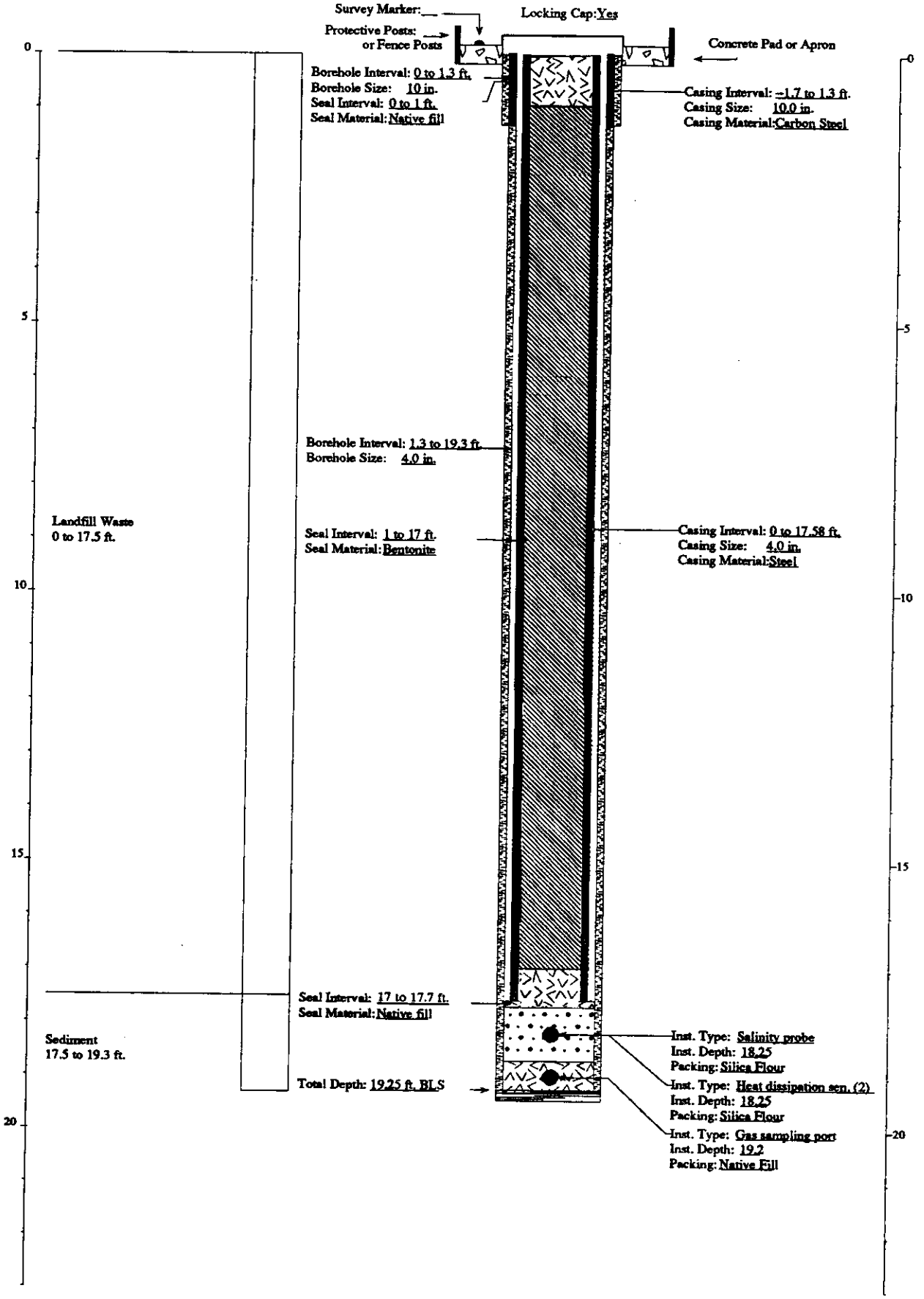
09/12/1993

Facility: CFA
Well Type: Scientific Instrumentation
Well Status: Inactive
Year Drilled: 1987
Total Depth: 19.25

Easting: 294323.00
Northing: 683321.50
Longitude: 1125632.36
Latitude: 433220.72
Completion Depth: NA

Driller: Denning
Geologist: NF
Drilling Method: Percussion hammer
Drilling Fluid: NF
Land Surface: 4931.3

Water Level: NA
Water Level Date: NA
Water Level Access: NA



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: CFA | PAGE 1 of 7 | Well Name/No. LF2-07

A. WELL/BORING USE

1) Year drilled: 1987

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) RCRA Monitoring
( ) CERCLA Characterization
( ) Other: _
( ) USGS Observation
(X) No Documented Use

3) Constituents monitored currently: None

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: EG&G (WAG 4) / W.R. Pigott

B. WELL/BORING INFORMATION

1) Construction Category
( ) Surface Percolation Well
( ) Gas Port
(X) Neutron Access Port
( ) Scientific Instrumentation
( ) Radioactivity Monitoring Port
( ) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
(X) None
( ) Vapor Sampler
( ) Gypsum Block
( ) Heat Dissipation Sensor
( ) Lysimeter
( ) Psychrometer
( ) Salinity Probe
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 18.2 ft. Top of basalt = N.F. ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
( ) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes X No _) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes X No _)
4) Does the well contain a survey marker: (Yes X No _)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No _ N/A X)
6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _) Explanation _

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes X No _ N/A _)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes _ No X N/A Borehole size 0.56-inch Casing size 0.56-inch)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Carbon steel (1)	0.56 I.D. or O.D.?	0 - 18.2	None	N.F.	.237	Yes

(1) The pipe has no perforations and is capped at the top and bottom.

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentomite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Fill Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
None	N/A	N/A	N/A

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3,3,1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams, spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No _ N/A X) Explanation See Section d. below.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No _ N/A X) Explanation (Qualify data/specify perched intervals if applicable) The neutron access tube is completed in the alluvium, the base of which is commonly the first perched interval.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes _ No _ N/A X) Explanation Since the monitoring tube was pounded into permeable alluvium, it should not promote vertical fluid migration.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Shallow Drilling Report, Ansley, 1988.

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: No Documented Use/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- ( ) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- (X) Boring is not sealed, but remediation is unnecessary.
- ( ) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The neutron access tube is constructed of 0.56-inch unperforated carbon steel pipe capped at the bottom and top. It was driven into the alluvium using a percussion hammer. The tube is used for monitoring the moisture content in the alluvium and is not a well as defined by the State of Idaho.

Deficiencies: None

Remediation: None

GEOLOGIC LOG

Well Name LF2-07

Source: Construction Data

****

Interval (feet below surface)

Begin	End	Description
0	18.2	Alluvium

COMPILED BY/ORGANIZATION: T.L. Morgan / GAI Date March 9, 1993

WellName: LF2-07

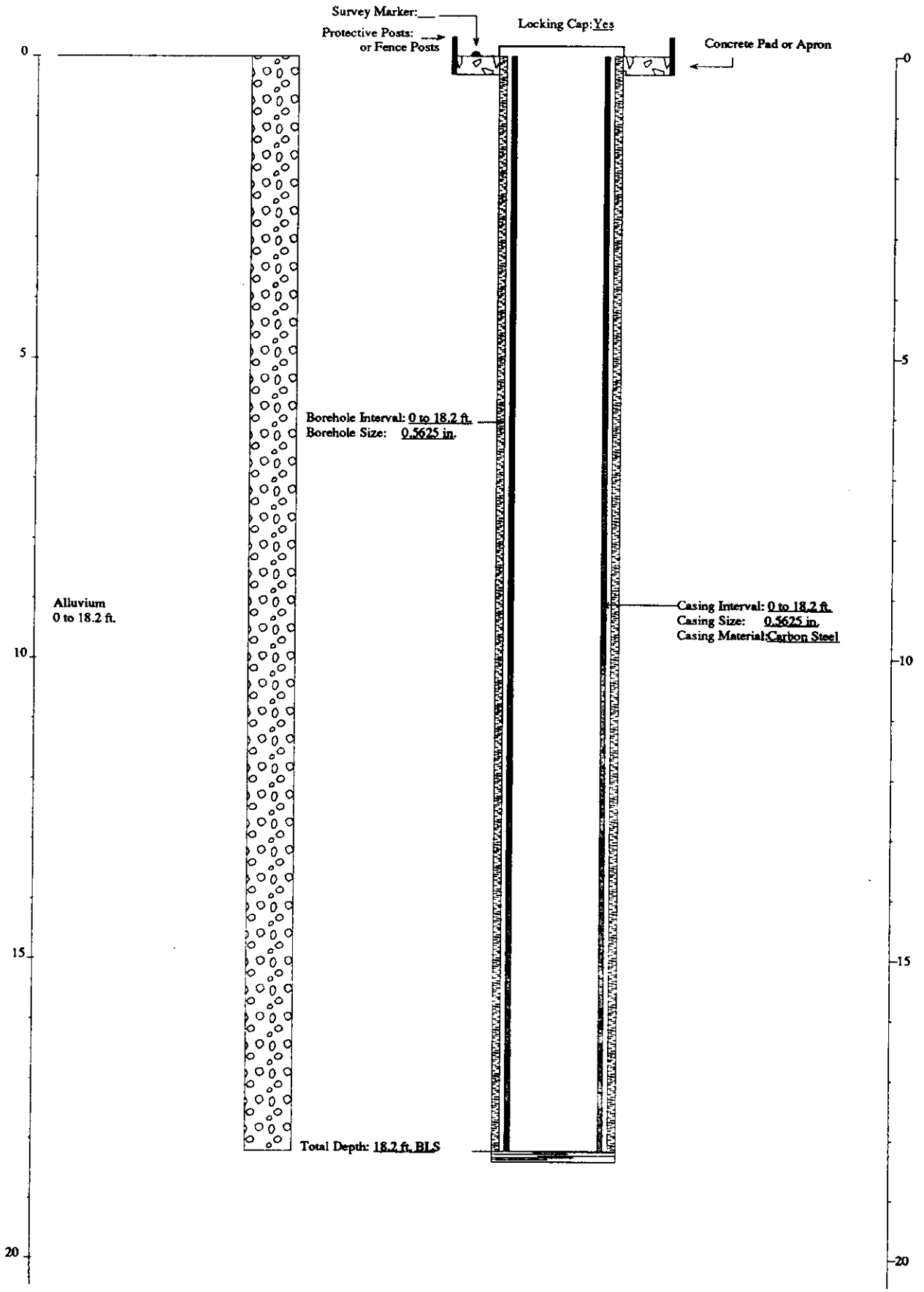
06/14/1993

Facility: CFA
Well Type: Neutron Access
Well Status: Inactive
Year Drilled: 1987
Total Depth: 18.2

Easting: 294594.10
Northing: 683241.80
Longitude: 1125628.65
Latitude: 433219.96
Completion Depth: NA

Driller: Denning
Geologist: NF
Drilling Method: Percussion Hammer
Drilling Fluid: NF
Land Surface: 4929.7

Water Level: NA
Water Level Date: NA
Water Level Access: NA



FITNESS-FOR-USE CHECKLIST FOR AQUIFER AND PERCHED GROUNDWATER MONITORING/OBSERVATION WELLS

LOCATION: CFA **Well Name/No.** LF2-08

A. WELL USES

1) Year well was drilled: 1988

2) Current use for well:
( )DOE 5400.1 Monitoring
( )RCRA Monitoring ( )USGS Observation
( )CERCLA Characterization ( )No Documented Use
(X)Other: Proposed for CERCLA monitoring starting in summer of 1993.

3) Constituents monitored currently: None

4) Water level monitored: (Yes _ No X Insufficient data _)

5) Is the well used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well used or proposed for compliance/detection monitoring:
(Yes X No _) If yes, specify regulating program plan: Landfill II and III RI/FS (number not designated yet)

7) Responsible organization/Contact person: EG&G (WAG 4) / W.R. Pigott

B. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells are being resurveyed as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890). The project started in the summer of 1992.

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes X No _) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes X No _)
4) Does the well contain a survey marker: (Yes X No _)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No _ N/A X)
6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _)

C. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS " (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ Insufficient Data _)
b) Access to measure water levels: (Yes X No _ Insufficient Data _)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes _ No _ N/A X)

b) If well is completed in alluvium, is borehole size at least 2 inches greater than the O.D. of casing: (Yes _ No _ N/A X
Borehole size _ Casing size _)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater:
(Yes X No _ N/A _)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to top of bedrock: (Yes _ No X Borehole size >12.25 inches Casing size 12.25 inch I.D.)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Carbon Steel (surface casing)	12.25 I.D.	0 - 28.5	Welded	0	.25	Yes
Carbon Steel	6.625 O.D.	0 - 445	N.F.	18	N.F.	N.F.
Dielectric Coupling	6	445	N.F.	N/A	N/A	N/A
Stainless Steel	6 I.D.	445 - 485	Flush-threaded	N/A	N.F.	N.F.

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Fill Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
Bentonite	28.5 (bottom of casing set in bentonite)	2 bags	Yes
Cement	0 - 481	N.F.	Yes
Bentonite	481 - 482	N.F.	Yes
1/4-inch Pea Gravel	482 - 497	N.F.	N/A
Grout	497 - 526	N.F.	Yes

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in the alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced (provide intervals if there was more than one grouting event): N/A X Uncertain/not documented _ Explanation for seal emplacement The surface casing was not sealed. However, a tremie pipe was used to install the filter pack and the bentonite and cement seals.

State of Idaho Reg. 3,3,1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes X No _) Explanation The well is about 90 feet from the CFA Landfill II boundary.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X Insufficient data _) Explanation (Qualify data/specify perched intervals if applicable) Although no neutron log was found, no perched water was mentioned in the End-of-Well Report.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: Yes, although the surface casing was not sealed in the borehole, the 6-inch well casing was grouted between

casings from 0 to 28.5 feet bls and in the borehole from 28.5 to 481 feet bls. Ten feet of gravelly clay above the basalt should help to seal the surface casing in the surficial sediments.

4) Gravel Pack. Does the well contain a gravel pack: (Yes X No _) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes X No _) Explanation The borehole was sealed with bentonite and grout above the gravel pack and with grout below it.

D. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes X No _). (If no, proceed to section E)

The State of Idaho Well Construction Regulations and INEL Best Management Practices that overlap with RCRA guidelines and regulations will not be duplicated in this section.

1) Were the drill rig, equipment, casing and screen steam cleaned before drilling and installation: (Yes _ No _ No documentation X) Explanation _

2) Were drilling additives used:
(Yes _ No _ Uncertain/No documentation X) Drilling Method Air Rotary
Additive(s)/Quality Water and/or foam may have been used 0-28.5 feet bls according to the 1992 End-of-Well Report. No information was found for the use of drilling fluids below 28.5 feet bls.

3) Are the casing (that portion which is within the sampling interval), the screen, the pump and the pump discharge pipe constructed of nonreactive material which does not affect/interfere with chemical, physical, biological or radiological constituents of interests: (Yes X No _)

	Material
Casing	Stainless steel
Screen	Stainless steel (485-495 feet bls)
Pump	HydroStar piston pump
Discharge Pipe	Passivated stainless steel

Explanation Stainless steel is acceptable for compliance/detection monitoring.

4) Is the screen factory fabricated: (Yes X No _ No screen _) Type 6-inch wire-wrapped screen, type 304, with 0.02-inch slots, bottom cap and centralizer

5) Is the monitoring interval adequate to detect the contaminants of concern, i.e. "floaters", "sinkers" or dissolved constituents: (Yes X No _) Explanation The water table, which is at about 475 feet bls, occurs above the gravel pack; therefore, the well monitors only dissolved constituents.

6) Is the monitoring interval greater than 30 feet in length: (Yes _ No X) or does the well monitor more than one type of lithology: (Yes _ No X) Monitoring interval 482 - 497 feet bls. The well monitors a discrete interval of 15 ft.

7) Is the filter pack present: (Yes X No _) If yes, is the filter pack comprised of chemically inert material: (Yes _ No _ Uncertain X N/A _) Does it extend no more than 2 feet above screen: (Yes _ No X N/A_) Filter pack type 1/4-inch pea gravel Filter pack interval 482 - 497 feet bls (extends 3 feet above screen)

8) Has the well been developed to ensure turbid free groundwater samples, i.e. <5 NTUs: (Yes _ No _ Not Documented X) and to restore natural hydraulic conductivity of the formation, i.e. stabilization of parameters: (Yes _ No _ Not Documented X) Well development type and duration The well was surged for 62 minutes and 593 gallons of water were pumped from the well. The pH, specific conductance dissolved oxygen and temperature were measured, but the values were not documented in the End-of-Well Report.

9) Is the pump location documented: (Yes _ No X) Depth The pump intake depth was planned for 486 feet bls.

10) Does the pump type collect representative ground-water samples: (Yes _ No _ Not Documented _) Type HydroStar piston pump Explanation Report EGG-WM-9787 indicates that gas piston pumps, submersible pumps and bailers produced nearly equal results for selected volatile organics at TAN. However, State Report OPTR 91-01 indicates that the use of the HydroStar pump may contribute chromium to groundwater samples.

E. **THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES:** End-of-Well Report (Rev. 01-92), EGG-WM-9787, State Report OPTR 91-01, Review of well fitness checklist by Shannon Ansley, EG&G (April 1993)

N.F. - Not Found/No Documentation
N/A - Not Applicable

F. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: Proposed for CERCLA/State Regulations and INEL Best Management Practices

( ) Well complies with applicable regulations and is acceptable for intended use.
( ) Well complies with applicable regulations except for minor construction details and is acceptable for intended use.
(X) Well does not meet applicable regulations, a variance should be obtained. If variance not obtained, remediation is required to comply with the regulations.
( ) Well does not meet applicable regulations and intended use, remediation is required.
( ) Well does not meet applicable regulations and should not be used for this purpose.
( ) Insufficient/uncertain data is available to evaluate compliance to the regulations.
( ) Abandonment, well is unneeded or cannot be remediated.

Deficiencies: The well does not contain a surface seal as required by state regulations. A variance should be requested for this since the well is adequately sealed in the basalt and between the 6 and 12-inch casings. Also, 10 feet of gravelly clay above the basalt should help to seal the outside of the 12-inch casing. In addition, the following minor deficiencies were noted: the borehole was not the required 2 inches larger than the surface casing diameter but was about the same size and the 6-inch casing thicknesses and the steel casing joint type were not documented. Although the 12-inch casing has no stickup, it is adequately sealed from surface contamination by a cement pad and the grout between the casings.

Remediation: None

FITNESS-FOR-USE CHECKLIST FOR AQUIFER AND PERCHED GROUNDWATER MONITORING/OBSERVATION WELLS

LOCATION: CFA Well Name/No. LF2-08

G. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: Proposed for CERCLA/RCRA Guidelines

( ) Well complies with applicable regulations and is acceptable for intended use.
(X) Well complies with applicable regulations except for minor details and is acceptable for intended use.
( ) Well does not meet applicable regulations, a variance should be obtained. If variance not obtained, remediation is required to comply with the regulations.
( ) Well does not meet applicable regulations and intended use, remediation is required.
( ) Well does not meet applicable regulations and should not be used for this purpose.
( ) Insufficient/uncertain data is available to evaluate compliance to the regulations.
( ) Abandonment, well is unneeded or cannot be remediated.

Deficiencies: The well complies with state regulations to the extent documented above. The well complies with RCRA guidelines except for the following minor deficiences: the decontamination procedures, the use of drilling fluids and the development were not fully documented, the use of the HydroStar pump may contribute chromium to the groundwater samples and the surface casing was not sealed in the borehole.

Remediation: None

GEOLOGIC LOG

Well Name LF2-08

Source: Field Borehole Log (#3)

****

Interval (feet below surface)

Begin	End	Description
0	17	Sand and Gravel
17	27.5	Brown Gravelly Clay
27.5	50	Gray Basalt
50	70	Brown Silty Sandy Gravel
70	142	Dense Basalt (Fractured 80-81, 94-98 ft)
142	185	Basalt with Clay Infillings
185	200	Red-Brown Clay with Cinders
200	208	Soft Yellow-Brown Basalt
208	219	Black Basalt
219	230	Highly Fractured Basalt
230	240	Gray Basalt
240	247	Basalt
247	255	Probable Interbed
255	377	Red-Brown to Brown Basalt
377	383	Red-Brown Sandy Clayey Silt (?)
383	395	Highly Fractured Basalt
395	526	Basalt (Highly Fractured 427-430, 447, 478, 501-502, and 519 ft)

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date August 15, 1992

WellName: LF2-08

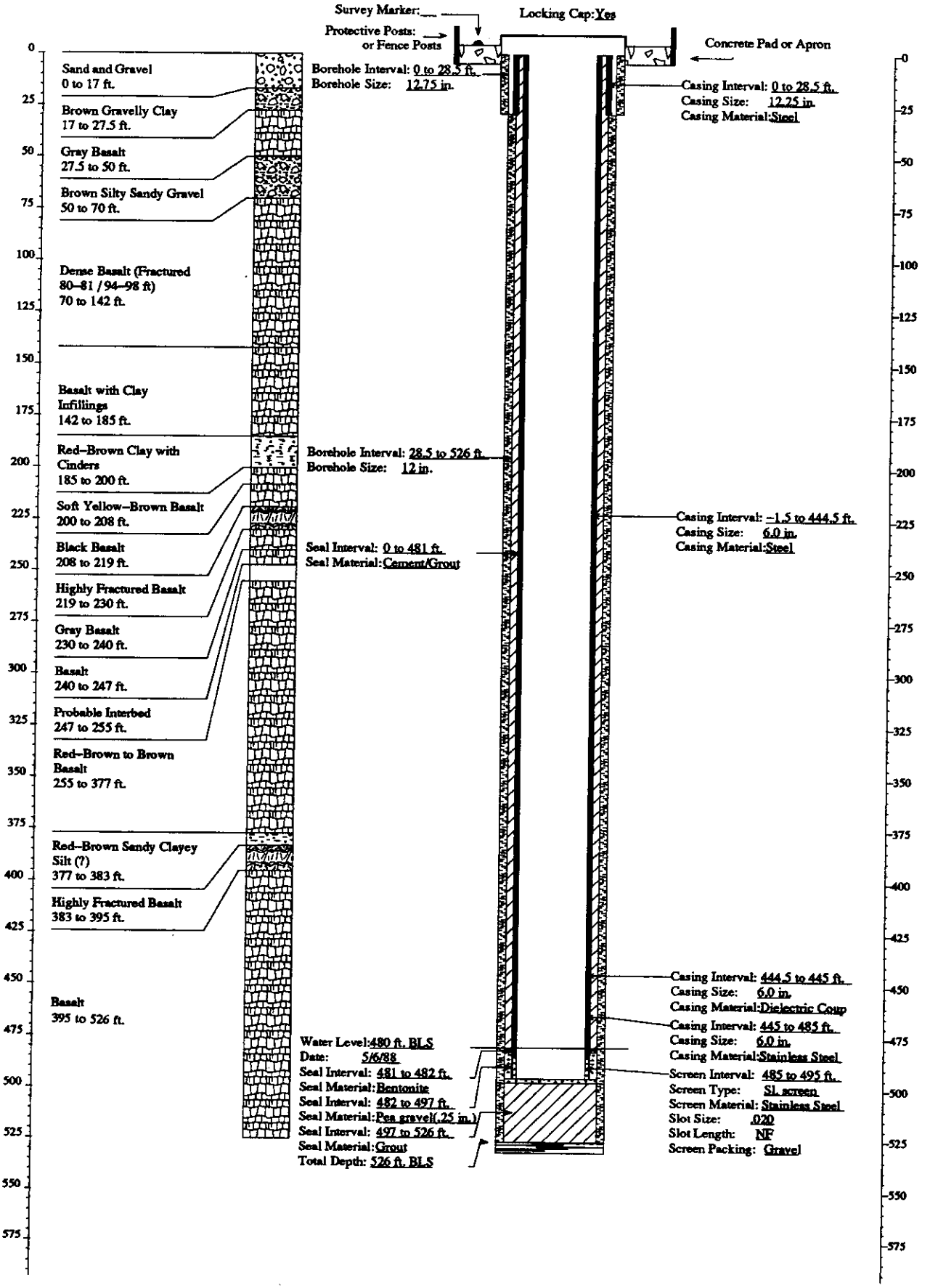
08/15/1993

Facility: CFA
Well Type: Observation Well
Well Status: Inactive
Year Drilled: 1988
Total Depth: 526

Easting: 294356.74
Northing: 682877.71
Longitude: 1125631.80
Latitude: 433216.33
Completion Depth: 526

Driller: Denning
Geologist: T. Dube
Drilling Method: Air rotary
Drilling Fluid: NF
Land Surface: NF

Water Level: 480
Water Level Date: 5/6/88
Water Level Access: NF



FITNESS-FOR-USE CHECKLIST FOR AQUIFER AND PERCHED GROUNDWATER MONITORING/OBSERVATION WELLS

LOCATION: CFA Well Name/No. LF2-09

A. WELL USES

1) Year well was drilled: 1988

2) Current use for well:
( )DOE 5400.1 Monitoring
( )RCRA Monitoring ( )USGS Observation
( )CERCLA Characterization ( )No Documented Use
(X)Other: Proposed for CERCLA monitoring starting in summer of 1993.

3) Constituents monitored currently: None

4) Water level monitored: (Yes _ No X Insufficient data _)

5) Is the well used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well used or proposed for compliance/detection monitoring:
(Yes X No _) If yes, specify regulating program plan: Landfill II and III RI/FS (number not designated yet)

7) Responsible organization/Contact person: EG&G (WAG 4) / W.R. Pigott

B. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells are being resurveyed as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890). The project started in the summer of 1992.

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes X No _) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes X No _)
4) Does the well contain a survey marker: (Yes X No _)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No _ N/A X)
6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _)

C. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS " (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ Insufficient Data _)
b) Access to measure water levels: (Yes X No _ Insufficient Data _)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes _ No _ N/A X)

b) If well is completed in alluvium, is borehole size at least 2 inches greater than the O.D. of casing: (Yes _ No _ N/A X
Borehole size _ Casing size _)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater:
(Yes X No _ N/A _)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to top of bedrock: (Yes _ No X Borehole size >12.25 inches Casing size 12.25 inch I.D.)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Carbon Steel (surface casing)	12.25 I.D.	0 - 32	Welded	0	.25	Yes
Low-Carbon Steel (Schedule 40)	4.5 O.D.	0 - 464.3	Flush-threaded	24	.237	Yes
Dielectric Coupling	4.5	464.3	Flush-threaded	N/A	N/A	N/A
Stainless Steel (Schedule 40)	4.5 O.D.	464.3 - 469.6	Flush-threaded	N/A	.237	Yes

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

FITNESS-FOR-USE CHECKLIST FOR AQUIFER AND PERCHED GROUNDWATER MONITORING/OBSERVATION WELLS

LOCATION: CFA Well Name/No. LF2-09

Annular Fill Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
Bentonite	N.F.	2 bags bentonite placed in annular space	Yes
Cement Grout	0 - 457.4 (Between casings 0-32 feet)	20.2 yd^3 grout (50% Portland Type I-II cement / 45% sand / 5% bentonite)	Yes
Bentonite Pellets	457.4 - 459.9	5 buckets hydrated pellets	Yes
Grade 20 Silica Sand	459.9 - 502.5	3400 lb	N/A
Bentonite Slurry	502.5 - 512.7	55 gallons bentonite slurry with bentonite pellets on bottom (70+ gallons water used in slurry)	Yes
Cement Grout	512.7 - 615.1	3.25 yd^3 grout (50% Portland Type I-II cement / 45% sand / 5% bentonite)	Yes
Backfill/Caving	615.1 - 676	N/A	N/A
Cement Grout	<377 - 410	4yd^3 cement to stabilize borehole during drilling	N/A

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in the alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No X Uncertain/Not documented _) Explanation. The outside of the surface casing was not grouted.

b) If the seal is documented, how was it emplaced (provide intervals if there was more than one grouting event): N/A X Uncertain/not documented _ Explanation for seal emplacement The surface casing was driven. However, a tremie pipe was used to install the filter pack and the bentonite and grout seals.

State of Idaho Reg. 3,3,1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes X No _) Explanation The well is about 90 feet from the CFA Landfill II boundary.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X Insufficient data _) Explanation (Qualify data/specify perched intervals if applicable) There was no evidence of perched water in the End-of-Well Report or on the 1990 neutron or gamma-gamma logs.

e) Is the casing sealed adequately to prevent ground water movement within the annular space: Yes, the annular space around the well casing was sealed above the gravel pack. The surface casing was driven and 2 bags of bentonite were placed in the annular space.

4) Gravel Pack. Does the well contain a gravel pack: (Yes X No _) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes X No _) Explanation The well was sealed with bentonite above and below the gravel pack.

D. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes X No _) (If no, proceed to section E)

The State of Idaho Well Construction Regulations and INEL Best Management Practices that overlap with RCRA guidelines and regulations will not be duplicated in this section.

1) Were the drill rig, equipment, casing and screen steam cleaned before drilling and installation: (Yes X No _ No documentation X) Explanation No documentation was found for decontamination procedures used during drilling; however, the drilling rig, tremie pipe and well casing were decontaminated before the well was installed.

2) Were drilling additives used:
(Yes X No _ Uncertain/No documentation _) Drilling Method Air Rotary. Additive(s)/Quality Foam was used for drilling in the surficial sediments and for cleaning out the bottom of the borehole at 676 feet after the drilling was finished.

3) Are the casing (that portion which is within the sampling interval), the screen, the pump and the pump discharge pipe constructed of nonreactive material which does not affect/interfere with chemical, physical, biological or radiological constituents of interests: (Yes X No _)

Material

Casing Stainless steel
Screen Stainless steel (468.6-497 feet bls)
Pump HydroStar piston pump
Discharge Pipe Passivated stainless steel
Explanation Stainless steel is acceptable for compliance/detection monitoring.

4) Is the screen factory fabricated: (Yes X No _ No screen _) Type 4-inch I.D., Type 304, wire-wrapped well screen with 0.02-inch slots and end cap.

5) Is the monitoring interval adequate to detect the contaminants of concern, i.e. "floaters", "sinkers" or dissolved constituents: (Yes X No _) Explanation The water table, which is at about 476.5 feet, occurs within the gravel pack; therefore, the well monitors both "floaters" and dissolved constituents.

6) Is the monitoring interval greater than 30 feet in length: (Yes _ No X) or does the well monitor more than one type of lithology: (Yes _ No X) Monitoring interval Water table (about 476.5 feet bls) to 502.5 feet bls. The well monitors a discrete interval of 26 feet.

7) Is the filter pack present: (Yes X No _) If yes, is the filter pack comprised of chemically inert material: (Yes X No _ Uncertain _ N/A _) Does it extend no more than 2 feet above screen: (Yes X No X N/A_) Filter pack type Grade 20 crushed silica stone Filter pack interval 459.9 - 502.5 feet bls. The filter pack extends 9.7 feet above the screen.

8) Has the well been developed to ensure turbid free groundwater samples, i.e. <5 NTUs: (Yes _ No _ Not Documented X) and to restore the natural hydraulic conductivity of the formation, i.e. stabilization of parameters: (Yes X No _ Uncertain/Not Documented _) Well development type and duration The well was surged for 50 to 75 minutes and then about 3400 gallons of water were pumped from the well until pH, specific conductance and temperature stabilized. After development, pH=8.87, sc=.575, T=13°C and the water was clear.

9) Is the pump intake location documented: (Yes X No _) Depth 486.5 feet

10) Does the pump type collect representative ground-water samples: (Yes _ No _ Not Documented _) Type HydroStar piston pump Explanation Report EGG-WM-9787 indicates that gas piston pumps, submersible pumps

and bailers produced nearly equal results for selected volatile organics at TAN. However, State Report OPTR 91-01, indicates that the use of the HydroStar pump may contribute chromium to groundwater samples.

E. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: End-of-Well Report (Rev. 01-92), EGG-WM-9787, State Report OPTR 91-01, Review of well fitness checklist by Shannon Ansley, EG&G (April 1993)

N.F. - Not Found/No Documentation
N/A - Not Applicable

F. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: Proposed for CERCLA/State Regulations and INEL Best Management Practices

( ) Well complies with applicable regulations and is acceptable for intended use.
( ) Well complies with applicable regulations except for minor construction details and is acceptable for intended use.
(X) Well does not meet applicable regulations, a variance should be obtained. If variance not obtained, remediation is required to comply with the regulations.
( ) Well does not meet applicable regulations and intended use, remediation is required.
( ) Well does not meet applicable regulations and should not be used for this purpose.
( ) Insufficient/uncertain data is available to evaluate compliance to the regulations.
( ) Abandonment, well is unneeded or cannot be remediated.

Deficiencies: The well does not have a surface casing seal as required by state regulations. A variance should be requested since the well is sealed in the basalt and between the 4 and 12-inch casings. Also, the surface casing was driven and 5 feet of gravelly clay above the basalt should help to seal the outside of the 12-inch casing. Also, the borehole was not the required 2 inches larger than the surface casing diameter but was about the same size, which is a minor deficiency. Although the 12-inch casing has no stickup, it is adequately sealed from surface contamination by a concrete pad and the cement between the casings.

Remediation: None

G. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: Proposed for CERCLA/RCRA Guidelines

( ) Well complies with applicable regulations and is acceptable for intended use.
( ) Well complies with applicable regulations except for minor details and is acceptable for intended use.
( ) Well does not meet applicable regulations, a variance should be obtained. If variance not obtained, remediation is required to comply with the regulations.
(X) Well does not meet applicable regulations and intended use, remediation is required.
( ) Well does not meet applicable regulations and should not be used for this purpose.
( ) Insufficient/uncertain data is available to evaluate compliance to the regulations.
( ) Abandonment, well is unneeded or cannot be remediated.

Deficiencies: The well complies with state regulations to the extent documented above. The well complies with RCRA guidelines concerning its construction except that the foam used during drilling may have affected the pH of the groundwater near the well. The pH of 8.87 at the end of development is high. Also, the HydroStar pump may contribute chromium to the groundwater samples, which is a minor deficiency since the pump can be removed from the well. Another minor deficiency is the lack of a surface casing seal.

Remediation: Additional development may be necessary to lower the pH of the groundwater before the well is used for chemical sampling.

GEOLOGIC LOG

Well Name LF2-09

Source: EG&G Generalized Lithology and Field Log

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Interval (feet below surface)

Begin	End	Description
0	17	Sand and Gravel
17	32	Gravelly Clay
32	45	Red to Red-Brown Basalt
45	65	Sand and Clay
65	145	Gray Basalt (Fractured 88 - 97 / 103 - 107 / 116 - 118 feet)
145	185	Sediment (No Recovery)
185	260	Brown to Gray Basalt
260	270	Basalt with Clay Infillings
270	377	Gray Basalt
377	385	Silt and Clay
385	625	Gray Basalt
625	645	Silt and Clay
645	670	Sand and Gravel
670	676	Basalt

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date August 18, 1992

WellName: LF2–09

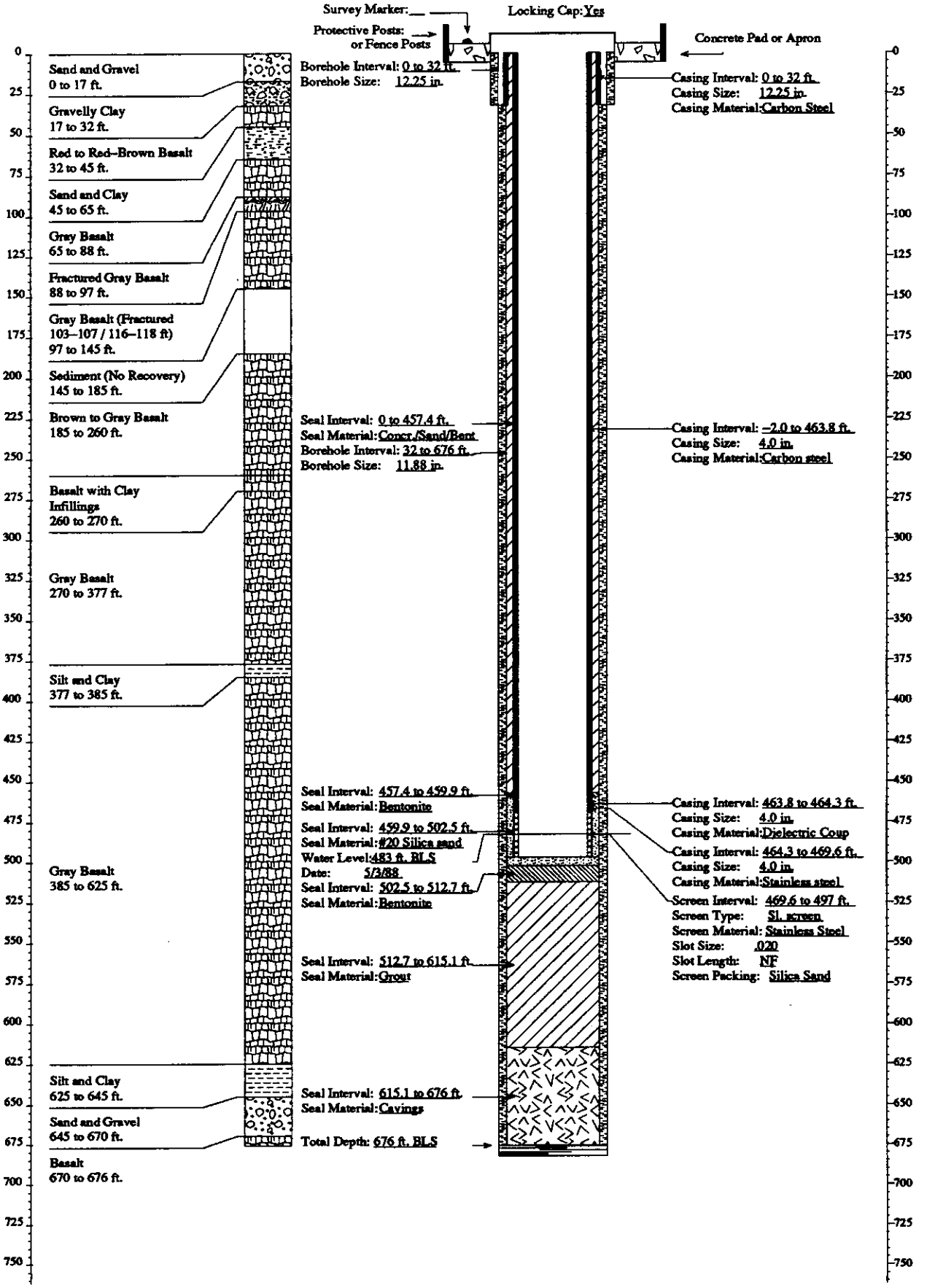
08/15/1993

Facility: CFA
Well Type: Observation Well
Well Status: Inactive
Year Drilled: 1988
Total Depth: 676

Easting: 294195.90
Northing: 682897.70
Longitude: 1125634.03
Latitude: 433216.52
Completion Depth: 497

Driller: Denning
Geologist: J.Jaacks,S.Ansley
Drilling Method: Rotary
Drilling Fluid: NF
Land Surface: 4933.0

Water Level: 483
Water Level Date: 5/3/88
Water Level Access: NA



FITNESS-FOR-USE CHECKLIST FOR AQUIFER AND PERCHED GROUNDWATER MONITORING/OBSERVATION WELLS

LOCATION: CFA Well Name/No. LF2-10

A. WELL USES

1) Year well was drilled: 1988

2) Current use for well:
( )DOE 5400.1 Monitoring
( )RCRA Monitoring ( )USGS Observation
( )CERCLA Characterization ( )No Documented Use
(X)Other: Proposed for CERCLA monitoring starting in summer of 1993.

3) Constituents monitored currently: None

4) Water level monitored: (Yes _ No X Insufficient data _)

5) Is the well used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well used or proposed for compliance/detection monitoring:
(Yes X No _) If yes, specify regulating program plan: Landfill II and III RI/FS (number not designated yet)

7) Responsible organization/Contact person: EG&G (WAG 4) / W.R. Pigott

B. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells are being resurveyed as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890). The project started in the summer of 1992.

1) Well located by field inspection: Yes _ No _ Uncertain X)
2) Protective posts: (Yes X No or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes X No _)
4) Does the well contain a survey marker: (Yes _ No _ Uncertain X)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No X N/A _)
6) Based on location of well, is existing or planned surface completion adequate:
(Yes _ No X) Explanation The End-of-Well Report states that a locking casing, cement pad and impingement posts were installed after the well was

completed. The well located during the field inspection did not have these items and was upgraded. The well located as LF2-10 should be identified and LF2-10 should be checked to ensure that a survey marker was placed at the well.

C. WELL MUST BE EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "RULES and REGULATIONS WELL CONSTRUCTION STANDARDS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ Insufficient Data _)

b) Access to measure water levels: (Yes X No _ Insufficient Data _)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes _ No _ N/A X)

b) If well is completed in alluvium, is borehole size at least 2 inches greater than the O.D. of casing: (Yes _ No _ N/A X
Borehole size _ Casing size _)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater:
(Yes X No _ N/A _)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to top of bedrock: (Yes _ No X Borehole size 12.75-inch Casing size 12.75-inch O.D.)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3.2.1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3.2.2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Carbon Steel (surface casing)	12.75 O.D.	0 - 26	Welded	0 - 2	.25	Yes
Carbon Steel	8.6 O.D.	0 - 676	Welded	16	.25	Yes
Carbon Steel	6.35 I.D.	0 - 452	Welded	N.F.	.25	Yes
Dielectric Coupling	N.F.	452	N.F.	N/A	N/A	N/A
Stainless Steel (possible break in pipe at 655 feet)	6 I.D.	452 - 755	Flush-threaded	N/A	.188	No

3) Seal

State of Idaho Reg. 3.3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Fill Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
Cement Grout	0 - 78 (bridged between 6 and 8-inch casings)	N.F.	Yes
Bentonite	N.F. (above filter pack, may have bridged)	N.F.	Yes
1/4-inch Pea Gravel	78 - 634 (frequently bridged between casings)	6 buckets pea gravel, 1/2 bag sand	N/A
'entonite	766 - 775 Est.	15 buckets bentonite	Yes
Cement Grout	775 Est. - 830	N.F.	Yes
Cement Grout	Between 8 and 12-inch casings	7-8 yd3	
Cement Grout	Below 652 feet	6-inch casing perforated in interval(s) between 700 and 755 ft. and pressure grouted. Grout probably was filling fracture at 752 ft.	Yes
Cement Grout		15+ yd^3 grout used to stabilize borehole during drilling	Yes

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in the alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No X Uncertain/Not documented _ Explanation. The outside of the surface casing may not have been grouted.

b) If the seal is documented, how was it emplaced (provide intervals if there was more than one grouting event): N/A X Uncertain/not documented _ Explanation for seal emplacement _

State of Idaho Reg. 3,3,1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes X No _) Explanation The well is located about 120 feet from the CFA landfill II boundary.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X Insufficient data _) Explanation (Qualify data/specify perched intervals if applicable) No evidence of perched water was found on the gamma-gamma log or from the End-of-Well Report.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: No, the outside of the surface and 8-inch casings and most of the annular spaces below 78 feet bls are unsealed.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack:(Yes _ No _ N/A X)

D. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (YES _ NO X). (If no, proceed to section E.)

The State of Idaho Well Construction Regulations and INEL Best Management Practices that overlap with RCRA guidelines and regulations will not be duplicated in this section.

Comment: Although the following RCRA section was not completed due to the extensive construction problems indicated in the casing and seal tables in Section C, the RCRA evaluation at the end of the checklist was completed for informational purposes.

1) Drill rig, equipment, casing and screen steam cleaned before drilling and installation: (Yes _ No _ No documentation _) Explanation _

2) Were drilling additives used: (Yes _ No _ Uncertain/No documentation _) Drilling Method _ Additive(s)/Quality _

3) Are the casing (that portion which is within the sampling interval), the screen, the pump and the pump discharge pipe constructed of nonreactive material which does not affect/interfere with chemical, physical, biological or radiological constituents of interests: (Yes _ No _)

Material

Casing _____

Screen _____

Pump _____

Discharge Pipe _____

Explanation _____

4) Is the screen factory fabricated: (Yes _ No _ No screen _) Type _

5) Is the monitoring interval adequate to detect the contaminants of concern, i.e. "floaters", "sinkers" or dissolved constituents: (Yes _ No _ Uncertain _)

6) Is the monitoring interval greater than 30 feet in length: (Yes _ No _) or does the well monitor more than one type of lithology: (Yes _ No _) Monitoring interval _

7) Is the filter pack present: (Yes _ No _) If yes, is the filter pack comprised of chemically inert material: (Yes _ No _ Uncertain _ N/A _) Does it extend no more than 2 feet above screen: (Yes _ No _ N/A_) Filter pack type _ Filter pack interval _

8) Has the well been developed to ensure turbid free groundwater samples, i.e. <5 NTUs: (Yes _ No _ Not Documented _) and to restore the natural hydraulic conductivity of the formation, i.e. stabilization of parameters: (Yes _ No _ Not Documented _) Well development type and duration _

9) Is the pump location documented: (Yes _ No _) Depth _

10) Does the pump type collect representative ground-water samples: (Yes _ No _ Not Documented _) Type _ Explanation _

E. **THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES:** End-of-Well Report (Rev. 01-92), Review of well fitness checklist by Shannon Ansley (April 1993)

N.F. - Not Found/No Documentation
N/A - Not Applicable

F. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: Proposed for CERCLA/State Regulations and INEL Best Management Practices

( ) Well complies with applicable regulations and is acceptable for intended use.
( ) Well complies with applicable regulations except for minor construction details and is acceptable for intended use.
( ) Well does not meet applicable regulations, a variance should be obtained. If variance not obtained, remediation is required to comply with the regulations.
(X) Well does not meet applicable regulations and intended use, remediation is required.
( ) Well does not meet applicable regulations and should not be used for this purpose.
( ) Insufficient/uncertain data is available to evaluate compliance to the regulations.
( ) Abandonment, well is unneeded or cannot be remediated.

Deficiencies: The well is located about 120 feet from CFA Landfill II and organic vapors were detected in the well at 376 feet bls during drilling. The degree to which the casings are sealed is unknown because various construction materials bridged between the 6 and 8-inch casings. Also, much of the cement which was pressure grouted at the bottom of the well was believed to have been lost in a fracture at 752 feet bls.

Remediation: The casings should be sealed if possible or the well should be plugged and abandoned to prevent the migration of contaminates in the borehole.

G. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: Proposed for CERCLA/RCRA Guidelines

( ) Well complies with applicable regulations and is acceptable for intended use.
( ) Well complies with applicable regulations except for minor details and is acceptable for intended use.
( ) Well does not meet applicable regulations, a variance should be obtained. If variance not obtained, remediation is required to comply with the regulations.
( ) Well does not meet applicable regulations and intended use, remediation is required.
(X) Well does not meet applicable regulations and should not be used for this purpose.
( ) Insufficient/uncertain data is available to evaluate compliance to the regulations.
( ) Abandonment, well is unneeded or cannot be remediated.

Note: The RCRA section of the checklist was not completed due to the extensive well construction problems indicated in the casing and seal tables of Section C. The RCRA evaluation is completed for informational purposes.

Deficiencies: The well complies with state regulations to the extent indicated in the preceding section. The well should not be used for compliance/detection groundwater sampling because various construction materials bridged between the 6 and 8-inch casings and the well may not be adequately sealed to prevent the migration of contaminants detected at 376 feet bls into the monitoring interval. Also, the stainless steel screen may have been broken during the installation. However, the well may be useful for water level measurements if the 8-inch casing can be sealed.

Remediation: The well should be remediated or plugged and abandoned as suggested in section F.

 GEOLOGIC LOG Well Name LF2-10

Source: EG&G Generalized Lithology

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Interval (feet below surface)

Begin	End	Description
0	20	Gravel with Sand
20	29	Clay and Gravel
29	50	Basalt (Fractured at 37 feet)
50	65	Clay
65	148	Basalt (Fractured 70-75 feet)
148	149	Clay
149	185	Basalt with Clay Infillings
185	237	Brown to Gray Basalt (Fractured 228-230 feet)
237	242	Basalt with Clay Infillings
242	340	Basalt (Fractured at 260 and 312 feet)
340	342	Sediment
342	372	Gray to Brown Basalt
372	380	Sediment
380	620	Gray to Brown Basalt (Fractures at 505 feet)
620	670	Red Silty Sand with Gravel
670	676	Basalt
676	685	Fractured Basalt
685	708	Basalt

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date August 15, 1992

GEOLOGIC LOG

Well Name LF2-10

Source: EG&G Generalized Lithology

****

Interval (feet below surface)

Begin	End	Description
708	714	Fractured Basalt
714	752	Basalt (Fractured 730-733 feet)
752	762	Fractured Basalt
762	805	Basalt (Fractures at 805 feet)
805	810	Sediment
810	816	Basalt

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date August 15, 1992

WellName: LF2-10

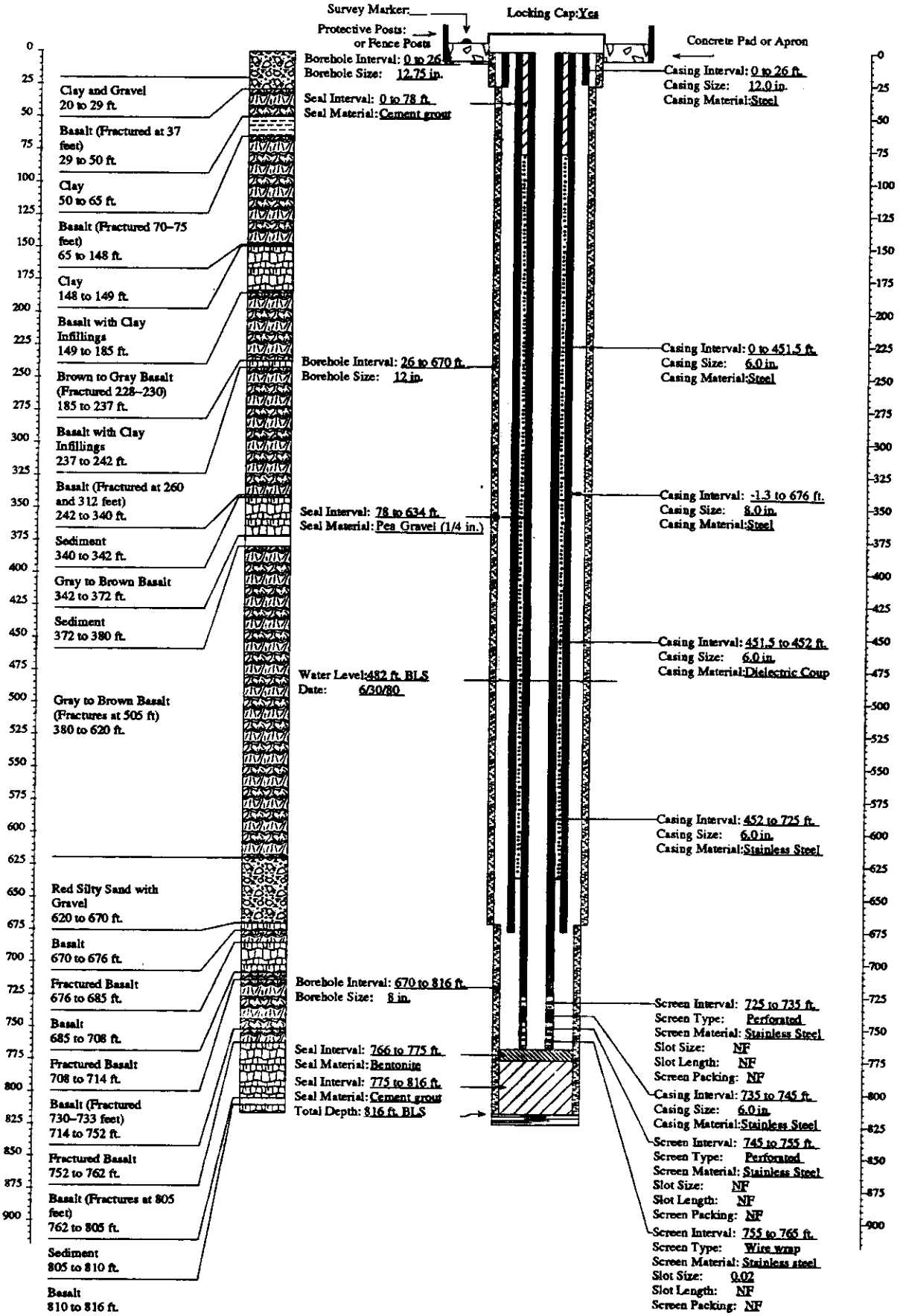
09/12/1993

Facility: CFA
Well Type: Observation Well
Well Status: Inactive
Year Drilled: 1988
Total Depth: 816

Easting: 294266.84
Northing: 682827.91
Longitude: 1125633.00
Latitude: 433216.00
Completion Depth: 766

Driller: Denning
Geologist: T. Weatherly
Drilling Method: Air rotary
Drilling Fluid: NF
Land Surface: 4934

Water Level: 482
Water Level Date: 6/30/80
Water Level Access: NF



FITNESS-FOR-USE CHECKLIST FOR AQUIFER AND PERCHED GROUNDWATER MONITORING/OBSERVATION WELLS

LOCATION: CFA Well Name/No. LF2-11

A. WELL USES

1) Year well was drilled: 1989

2) Current use for well:
( )DOE 5400.1 Monitoring
( )RCRA Monitoring ( )USGS Observation
( )CERCLA Characterization ( )No Documented Use
(X)Other: Proposed for CERCLA monitoring starting in summer of 1993.

3) Constituents monitored currently: None

4) Water level monitored: (Yes _ No X Insufficient data _)

5) Is the well used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well used or proposed for compliance/detection monitoring:
(Yes X No _) If yes, specify regulating program plan: Landfill II and III RI/FS (number not designated yet)

7) Responsible organization/Contact person: EG&G (WAG 4) / W.R. Pigott

B. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells are being resurveyed as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890). The project started in the summer of 1992.

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes X No _) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes X No _)
4) Does the well contain a survey marker: (Yes X No _)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No _ N/A X)
6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _)

C. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ Insufficient Data _)
b) Access to measure water levels: (Yes X No _ Insufficient Data _)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes _ No _ N/A X)

b) If well is completed in alluvium, is borehole size at least 2 inches greater than the O.D. of casing: (Yes _ No _ N/A X
Borehole size _ Casing size _)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater:
(Yes X No _ N/A _)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to top of bedrock: (Yes _ No X Borehole size 12-inch Casing size 12-inch)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Carbon Steel (surface casing)	12 I.D. or O.D.?	0 - 24	Welded	0	N.F.	N.F.
Carbon Steel	10 I.D. or O.D.?	0 - 30.3	Welded	1 - 2	.237	Yes
Carbon Steel	4 I.D. or O.D.?	0 - 459.5	Flush-threaded	16	.237	Yes
Dielectric Coupling	N.F.	459.5 - 460	Flush-threaded	N/A	N/A	N/A
Stainless Steel	4 I.D.	460 - 466	Flush-threaded	N/A	.237	Yes

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Fill Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
Cement Grout	0 - 30.3 (between 10 and 12-inch casings)	2 bags cement, 30 shovels sand, 1 shovel bentonite	Yes
Cement Grout	0 - 455	9.3 yd^3 grout (50% ASTM Type II cement / 45% sand / 5% bentonite	Yes
Bentonite Pellets	455 - 463	6 buckets	Yes
20 Grade Silica Sand	463 - 502.5	17 bags	N/A
Bentonite Pellets	502.5 - 510.9	4 buckets	Yes
Cement Grout		13.5 yd^3 grout with bentonite and CaCl to stabilize borehole during drilling	Yes

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in the alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No X Uncertain/Not documented _) Explanation _.

b) If the seal is documented, how was it emplaced (provide intervals if there was more than one grouting event): N/A _ Uncertain/not documented _ Explanation for seal emplacement The surface casing was driven into the borehole. However, a tremie pipe was used to install the bentonite and the cement grout.

State of Idaho Reg. 3,3,1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No X) Explanation The well is located about 1200 feet north of CFA Landfill II.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X Insufficient data _) Explanation (Qualify data/specify perched intervals if applicable) The neutron log, gamma-gamma log and End-of-Well Report show no evidence of perched water.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: Yes, the annular spaces above the gravel pack are sealed except for the outside of the 12-inch surface casing, which was hammered into the borehole.

4) Gravel Pack. Does the well contain a gravel pack: (Yes X No _) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes X No _) Explanation The well was sealed with bentonite pellets above and below the gravel pack.

D. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes X No _). (If no, proceed to section E)

The State of Idaho Well Construction Regulations and INEL Best Management Practices that overlap with RCRA guidelines and regulations will not be duplicated in this section.

1) Were the drill rig, equipment, casing and screen steam cleaned before drilling and installation: (Yes X No _ No documentation _) Explanation The decontamination procedures are documented in the logbooks.

2) Were drilling additives used: (Yes _ No X Uncertain/No documentation _) Drilling Method Air Rotary Additive(s)/Quality Water was used in drilling the basalt to loosen a stuck drill string and for circulation.

3) Are the casing (that portion which is within the sampling interval), the screen, the pump and the pump discharge pipe constructed of nonreactive material which does not affect/interfere with chemical, physical, biological or radiological constituents of interests: (Yes X No _)

	Material
Casing	Stainless steel
Screen	Stainless steel (466-499 feet bls)
Pump	HydroStar piston pump
Discharge Pipe	Passivated stainless steel

Explanation Stainless steel is acceptable for compliance/detection monitoring.

4) Is the screen factory fabricated: (Yes X No _ No screen _) Type 4-inch I.D. wire-wrapped screen with 0.02-inch slots and bottom cap

5) Is the monitoring interval adequate to detect the contaminants of concern, i.e. "floaters", "sinkers" or dissolved constituents: (Yes X No _) Explanation The water table occurs within the gravel pack; therefore, the well monitors both "floaters" and dissolved constituents.

6) Is the monitoring interval greater than 30 feet in length: (Yes X No _) or does the well monitor more than one type of lithology: (Yes _ No X) Monitoring interval Water table (about 470 feet bls) to 502.5 feet bls. The well monitors a discrete zone of about 32.5 feet.

7) Is the filter pack present: (Yes X No _) If yes, is the filter pack comprised of chemically inert material: (Yes X No _ Uncertain _ N/A _) Does it extend no more than 2 feet above screen: (Yes X No _ N/A_) Filter pack type 20 grade silica sand Filter pack interval 463 - 502.5 feet bls (extends 3 feet above the screen)

8) Has the well been developed to ensure turbid free groundwater samples, i.e. <5 NTUs: (Yes _ No _ Not Documented X) and to restore the natural hydraulic conductivity of the formation, i.e. stabilization of parameters: (Yes X No _ Uncertain/Not Documented _ Well development type and duration The well was surged for about 1 hour and then about 600 gallons of water were pumped from the well until the parameters stabilized. These values were documented in the project logbooks.

9) Is the pump location documented: (Yes X No _) Depth 480 feet

10) Does the pump type collect representative ground-water samples: (Yes _ No _ Not Documented _) Type HydroStar piston pump Explanation Report EGG-WM-9787 indicates that gas piston pumps, submersible pumps and bailers produced nearly equal results for selected volatile organics at TAN. However, State Report OPTR 91-01, indicates that the use of the HydroStar pump may contribute chromium to groundwater samples.

E. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: EGG-WM-9787, End-of-Well Report (Rev. 01-92), State Report OPTR 91-01, Review of well fitness checklist by Shannon Ansley, EG&G (April 1993)

N.F. - Not Found/No Documentation
N/A - Not Applicable

F. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: Proposed for CERCLA/State Regulations and INEL Best Management Practices

( ) Well complies with applicable regulations and is acceptable for intended use.
( ) Well complies with applicable regulations except for minor construction details and is acceptable for intended use.
(X) Well does not meet applicable regulations, a variance should be obtained. If variance not obtained, remediation is required to comply with the regulations.
( ) Well does not meet applicable regulations and intended use, remediation is required.
( ) Well does not meet applicable regulations and should not be used for this purpose.
( ) Insufficient/uncertain data is available to evaluate compliance to the regulations.
( ) Abandonment, well is unneeded or cannot be remediated.

Deficiencies: The well does not contain a surface seal as required by state regulations. Since all of the casings are sealed above the monitored zone except for the 12-inch surface casing, which was driven into the borehole, a variance should be requested for the lack of this seal. Also, the borehole was not the required 2 inches larger than the surface casing diameter but was about the same size, which is a minor deficiency. Although the 10 and 12-inch casings have little or no stick-up, they are adequately sealed from surface contamination by a concrete pad and grout between the casings.

Remediation: None

G. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: Proposed for CERCLA/RCRA Guidelines

( ) Well complies with applicable regulations and is acceptable for intended use.
(X) Well complies with applicable regulations except for minor details and is acceptable for intended use.
( ) Well does not meet applicable regulations, a variance should be obtained. If variance not obtained, remediation is required to comply with the regulations.
( ) Well does not meet applicable regulations and intended use, remediation is required.
( ) Well does not meet applicable regulations and should not be used for this purpose.
( ) Insufficient/uncertain data is available to evaluate compliance to the regulations.
( ) Abandonment, well is unneeded or cannot be remediated.

Deficiencies: The well complies with state regulations to the extent indicated in the preceding section. The well complies with RCRA guidelines except that the use of the HydroStar pump may contribute chromium to the groundwater samples and the surface casing was not sealed in the borehole. Both of these are minor deficiences.

Remediation: None

GEOLOGIC LOG

Well Name LF2-11

Source: EG&G Generalized Lithology

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Interval (feet below surface)

Begin	End	Description
0	18	Brown Silty Sandy Gravel
18	25.3	Gray Clayey Gravel
25.3	42.4	Basalt
42.4	47	Red Sand
47	134	Basalt (Fractured at 70 and 115-120 feet)
134	135	Red Sand
135	193	Basalt with Clay Infillings
193	201	Red Cinders
201	238	Basalt
238	240	Interbed
240	320	Basalt
320	324	Red Interbed
324	358	Basalt
358	380	Red Sand
380	444	Basalt (Fractured 418-420 feet)
444	455	Sand and Cinders
455	510	Fractured Basalt

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date August 15, 1992

WellName: LF2--11

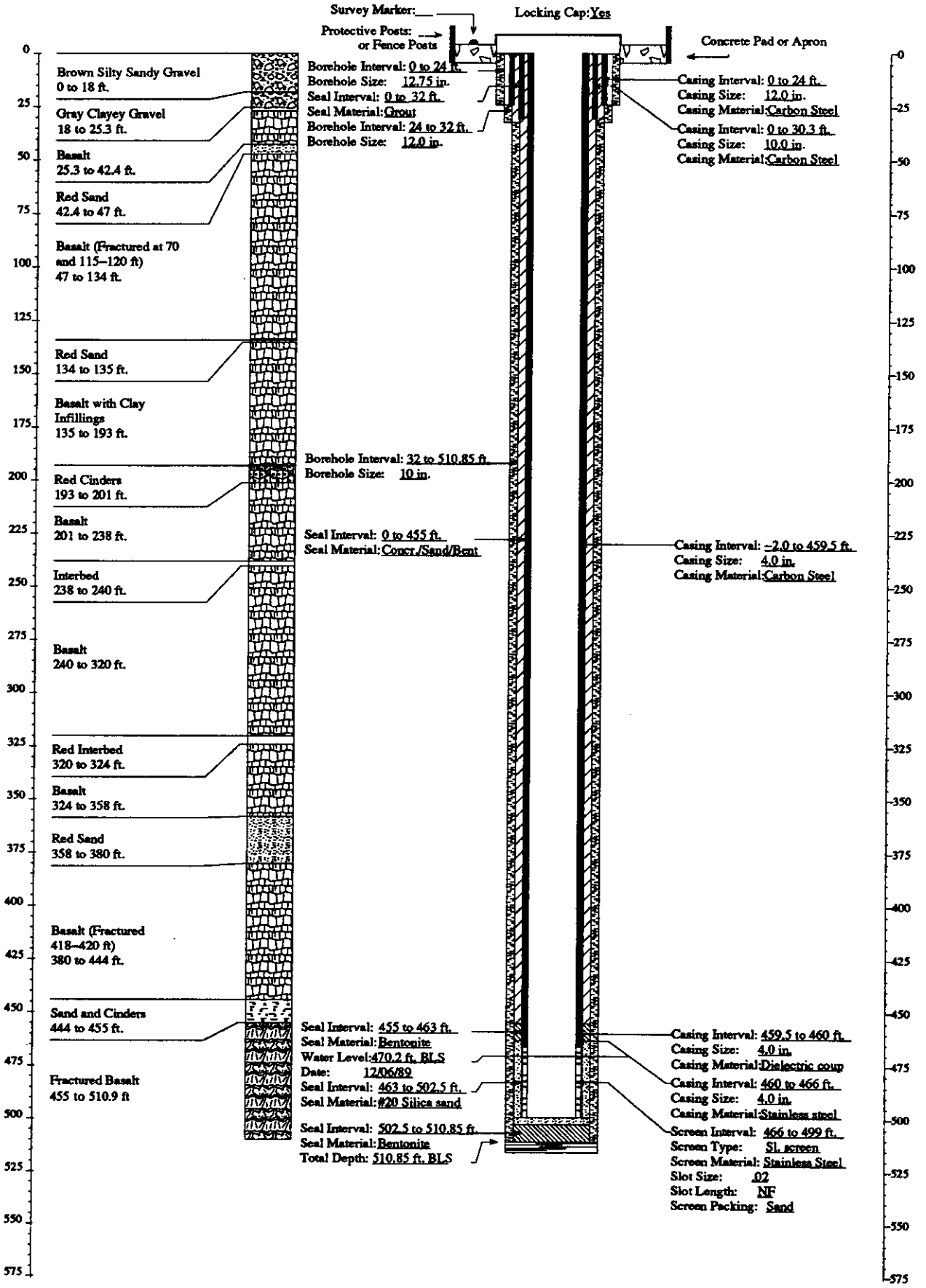
08/15/1993

Facility: CFA
Well Type: Observation Well
Well Status: Inactive
Year Drilled: 1989
Total Depth: 510.85

Easting: 295460.16
Northing: 684290.72
Longitude: 1125617.041
Latitude: 433230.397
Completion Depth: 502.5

Driller: NF
Geologist: B. Higgs, S. Ansley
Drilling Method: NF
Drilling Fluid: NF
Land Surface: 4929.5

Water Level: 470.2
Water Level Date: 12/06/89
Water Level Access: NF



FITNESS-FOR-USE CHECKLIST FOR AQUIFER AND PERCHED GROUNDWATER MONITORING/OBSERVATION WELLS

LOCATION: CFA Well Name/No. LF2-12

A. WELL USES

1) Year well was drilled: 1990

2) Current use for well:
( )DOE 5400.1 Monitoring
( )RCRA Monitoring ( )USGS Observation
( )CERCLA Characterization ( )No Documented Use
(X)Other: Proposed for CERCLA monitoring starting in summer of 1993.

3) Constituents monitored currently: None

4) Water level monitored: (Yes _ No X Insufficient data _)

5) Is the well used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well used or proposed for compliance/detection monitoring:
(Yes X No _) If yes, specify regulating program plan: Landfill II and III RI/FS (number not designated yet)

7) Responsible organization/Contact person: EG&G (WAG 4) / W.R. Pigott

B. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells are being resurveyed as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890). The project started in the summer of 1992.

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes X No _) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes X No _)
4) Does the well contain a survey marker: (Yes X No _)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No _ N/A X)
6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _)

C. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ Insufficient Data _)
b) Access to measure water levels: (Yes X No _ Insufficient Data _)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes _ No _ N/A X)

b) If well is completed in alluvium, is borehole size at least 2 inches greater than the O.D. of casing: (Yes _ No _ N/A X
Borehole size _ Casing size _)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater:
(Yes X No _ N/A _)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to top of bedrock: (Yes X No _ Borehole size 14.5 or 15-inch Casing size 12-inch I.D.)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Carbon Steel Protective Covering	6 I.D.	0 - 4	None	24	N/A	N/A
Carbon Steel (Surface Casing)	12 I.D.	0 - 28	Welded	0	0.237	Yes
Passivated Stainless Steel (Schedule 10S)	4.5 O.D.	0 - 470	Flush-threaded	24	0.12	No

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

FITNESS-FOR-USE CHECKLIST FOR AQUIFER AND PERCHED GROUNDWATER MONITORING/OBSERVATION WELLS

LOCATION: CFA Well Name/No. LF2-12

Annular Fill Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
Cement Grout	0 - 458	14+ yd^3 grout with sand and bentonite	Yes
Bentonite Pellets	458 - 463	25 gallons (hydrated)	Yes
Silica Sand	463 - 509	7 sacks (8-12 grade), 34 sacks (6-9 grade), 1 sack (10-20 grade)	N/A
Cavings	509 - 517	N/A	N/A
Cement Grout		19+ yd^3 cement with sand, bentonite and CaCl used to stabilize borehole during drilling	Yes

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in the alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes X No Uncertain/Not documented _) Explanation _

b) If the seal is documented, how was it emplaced (provide intervals if there was more than one grouting event): N/A _ Uncertain/not documented _ Explanation for seal emplacement The surface casing was pressure grouted. A tremie pipe was used to install the filter pack and the remainder of the cement grout.

State of Idaho Reg. 3.3.1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes X No _) Explanation The well is located in proximity to CFA Landfill II.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X Insufficient data _) Explanation (Qualify data/specify perched intervals if applicable) No evidence of perched water was found in the End-of-Well Report or on the gamma-gamma log.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: Yes, the annular spaces above the gravel pack were sealed with cement grout or bentonite.

4) Gravel Pack. Does the well contain a gravel pack: (Yes X No _) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes X No _) Explanation The borehole was sealed with bentonite and grout above the gravel pack.

D. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes X No _). (If no, proceed to section E)

The State of Idaho Well Construction Regulations and INEL Best Management Practices that overlap with RCRA guidelines and regulations will not be duplicated in this section.

1) Were the drill rig, equipment, casing and screen steam cleaned before drilling and installation: (Yes X No _ No documentation _) Explanation The decontamination procedures are documented in the logbooks.

2) Were drilling additives used: (Yes _ No X Uncertain/No documentation _) Drilling Method Air Rotary Additive(s)/Quality Water was added to keep the dust down at 235 feet bls.

3) Are the casing (that portion which is within the sampling interval), the screen, the pump and the pump discharge pipe constructed of nonreactive material which does not affect/interfere with chemical, physical, biological or radiological constituents of interests: (Yes X No _)

	Material
Casing	Passivated stainless steel
Screen	Passivated stainless steel (464.5-486.5 feet bls)
Pump	HydroStar piston pump
Discharge Pipe	Passivated stainless steel

Explanation Stainless steel is acceptable for compliance/detection monitoring.

4) Is the screen factory fabricated: (Yes X No _ No screen _) Type 304, stainless, wire-wrapped screen with 0.02-inch slots, end cap and centralizer.

FITNESS-FOR-USE CHECKLIST FOR AQUIFER AND PERCHED GROUNDWATER MONITORING/OBSERVATION WELLS

LOCATION: CFA Well Name/No. LF2-12

5) Is the monitoring interval adequate to detect the contaminants of concern, i.e. "floaters", "sinkers" or dissolved constituents: (Yes X No _)
Explanation The water table, which is at about 475.5 feet bls, occurs within the gravel pack; therefore, the well monitors both "floaters" and dissolved constituents.

6) Is the monitoring interval greater than 30 feet in length: (Yes X No _) or does the well monitor more than one type of lithology: (Yes _ No _ Uncertain X)
Monitoring interval(s) Water table (about 475.5 feet bls) to 509 feet bls. The monitoring interval of about 34 feet is slightly excessive, and the 8 feet of caved material at the bottom of the well may act as an extension of it. In addition, the lithology at the bottom of the monitored zone was not defined.

7) Is the filter pack present: (Yes X No _) If yes, is the filter pack comprised of chemically inert material: (Yes X No _ Uncertain _ N/A _) Does it extend no more than 2 feet above screen: (Yes X No _ N/A_) Filter pack type Grade 6/9 and 8/12 Silica Sand Filter pack interval 464.6-509 feet bls (extends about 3 feet above screen)

8) Has the well been developed to ensure turbid free groundwater samples, i.e. <5 NTUs: (Yes _ No _ Not Documented X) and to restore the natural hydraulic conductivity of the formation, i.e. stabilization of parameters:
(Yes X No _ Uncertain/Not Documented _) Well development type and duration The well was surged for 60 minutes and then 300 gallons of water were pumped from the well until the pH, dissolved oxygen, specific conductance and temperature stabilized. These values are documented in the project logbooks.

9) Is the pump location documented: (Yes X No _) Depth 481.4 feet

10) Does the pump type collect representative ground-water samples:
(Yes _ No _ Not Documented _) Type HydroStar piston pump Explanation Report EGG-WM-9787 indicates that gas piston pumps, submersible pumps and bailers produced nearly equal results for selected volatile organics at TAN. However, State Report OPTR 91-01, indicates that the use of the HydroStar pump may contribute chromium to groundwater samples.

FITNESS-FOR-USE CHECKLIST FOR AQUIFER AND PERCHED GROUNDWATER MONITORING/OBSERVATION WELLS

LOCATION: CFA Well Name/No. LF2-12

E. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: End-of-Well Report (Rev. 01-92), EGG-WM-9787, State Report OPTR 91-01, Review of well fitness checklist by Shannon Ansley, EG&G (April 1993)

N.F. - Not Found/No Documentation
N/A - Not Applicable

F. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: Proposed for CERCLA/State Regulations and INEL Best Management Practices

( ) Well complies with applicable regulations and is acceptable for intended use.
( ) Well complies with applicable regulations except for minor construction details and is acceptable for intended use.
(X) Well does not meet applicable regulations, a variance should be obtained. If variance not obtained, remediation is required to comply with the regulations.
( ) Well does not meet applicable regulations and intended use, remediation is required.
( ) Well does not meet applicable regulations and should not be used for this purpose.
( ) Insufficient/uncertain data is available to evaluate compliance to the regulations.
( ) Abandonment, well is unneeded or cannot be remediated.

Deficiencies: The well does not comply with state regulations because the schedule 10 stainless steel casing does not meet the state's minimum thickness specifications. Therefore, a variance should be requested. Although the 12-inch casing has no stick-up, it is adequately sealed from surface contamination.

Remediation: None

G. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: Proposed for CERCLA/RCRA Guidelines

( ) Well complies with applicable regulations and is acceptable for intended use.
( ) Well complies with applicable regulations except for minor details and is acceptable for intended use.
(X) Well does not meet applicable regulations, a variance should be obtained. If variance not obtained, remediation is required to comply with the regulations.
( ) Well does not meet applicable regulations and intended use, remediation is required.
( ) Well does not meet applicable regulations and should not be used for this purpose.
( ) Insufficient/uncertain data is available to evaluate compliance to the regulations.
( ) Abandonment, well is unneeded or cannot be remediated.

Deficiencies: The well complies with state regulations to the extent indicated in the preceding section. The well may not comply with RCRA guidelines because the monitoring interval may be considered excessive for compliance/detection use and may result in the dilution of contaminant concentrations. Although the distance from the water table to the base of the filter pack is only 34 feet, eight feet of cuttings and caved material in the bottom of the borehole may act as an extension of the filter pack. Therefore, a variance should be requested before the well is used for RCRA purposes. Also, it may be necessary to verify that the well monitors only one zone since no lithologic samples were collected from the bottom 27 feet of the well. The use of the HydroStar pump, which may contribute chromium to the groundwater samples and the lack of a surface casing seal are minor deficiencies.

Remediation: None

GEOLOGIC LOG

Well Name LF2-12

Source: EG&G Generalized Lithology

****

Interval (feet below surface)

Begin	End	Description
0	23	Coarse Sand
23	46	Gray Basalt
46	60	Red Sand with Basalt Layers Below 50.5 feet
60	143	Hard Basalt
143	180	Possible Cinder Zone
213	215	Basalt
215	225	Red Sand
225	257	Basalt (Fractured at 245 feet)
257	265	Fractured Basalt
265	340	Basalt (Fractured at 285 feet)
340	345	Red Cinders
345	374	Basalt
374	385	Interbed or Cinder Zone ?
385	420	Basalt
420	432	Cinder Zone
432	490	Basalt
490	517	No Sample

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date August 15, 1992

WellName: LF2-12

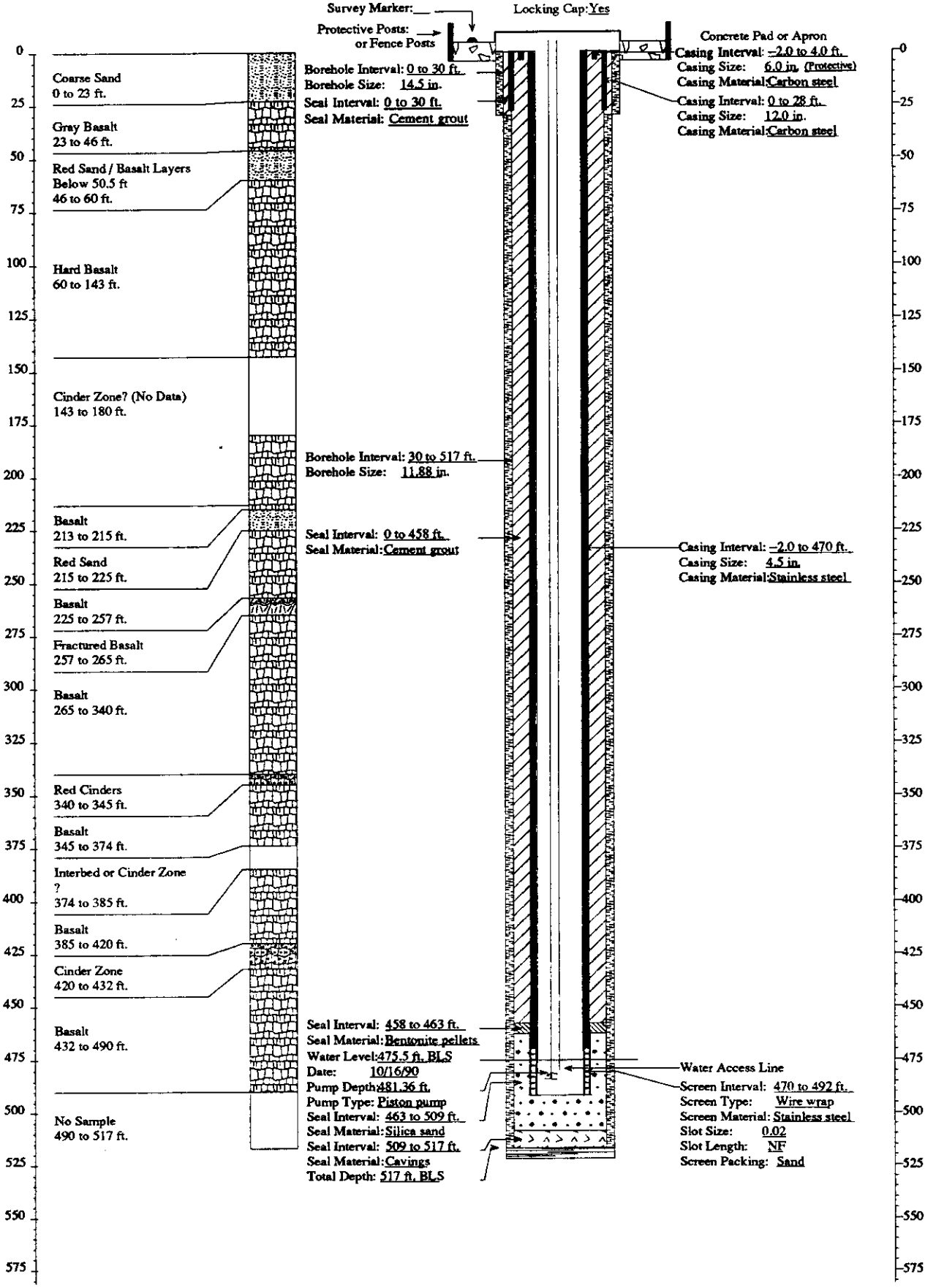
06/30/1993

Facility: CFA
Well Type: Observation Well
Well Status: Inactive
Year Drilled: 1990
Total Depth: 517

Easting: 294018.71
Northing: 682924.45
Longitude: 1125636.437
Latitude: 433216.772
Completion Depth: 489.7

Driller: PC Exploration
Geologist: David Burgess
Drilling Method: Mud rotary and air hammer
Drilling Fluid: Drilling mud
Land Surface: 4933.87

Water Level: 475.5
Water Level Date: 10/16/90
Water Level Access: Hole



CHECKLIST FOR ABANDONED/DESTROYED WELLS AND BORINGS

Location CFA Well Name/No. LF2-12A

A. Sources for Well Abandonment

1) What sources indicated that the well was plugged or destroyed:
( ) Comprehensive Well Survey status: N.F.
( ) INEL Well Catalog (field survey by K. Beard) _
( ) Personal communication _
(X) Other End of Well Report.

2) Was the well located by field inspection and documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380)
( ) Well was located by field inspection.
(X) Well was not located by field inspection.

B. Abandonment Procedures

1) How was the well abandoned or destroyed:
( ) Backfilled
( ) Buried
(X) Grouted
( ) Other
( ) Not documented

2) List procedure and amounts of material used to abandon the well:
The casing was cut off 12 inches below land surface. The well was sealed with 34.5 yd^3 of cement. A 1-foot square concrete pad with a brass survey marker was placed over the well.

C. Well Casing

1) Does the well contain surface or other well casing:
Yes X No _ Not Documented _

2) Was the annular space between the casing and borehole grouted:
Yes X No _ Not Documented _ N/A _

D. Compliance with State Regulations

State of Idaho Reg.3.12.1. Permanently abandoned wells may have the casing removed or left in place and shall be filled with bentonite grout, cement grout, concrete, puddling clay, or other material as required to stop the upward or downward movement of water and prevent the waste and/or contamination of the ground water.

1) Total depth of well 375 ft. Top of basalt 25.4 ft.

CHECKLIST FOR ABANDONED/DESTROYED WELLS AND BORINGS

Location CFA Well Name/No. LF2-12A

2) Was the well properly abandoned in accordance with Idaho State regulations:
Yes X No _ Not Documented _ Not Certain _

3) Are additional abandonment procedures necessary:
Yes _ No X Not Certain _

GEOLOGIC LOG

Well Name LF2-12A

Source: Generalized Lithology Log

****

Interval (feet below surface)

Begin	End	Description
0	25.4	Gravel and Sand
25.4	42	Basalt (Fractured at 29 feet)
42	59	Sand
59	123	Dense Basalt
123	132	Scoriaceous Basalt
132	139	Vuggy Basalt
139	147	Brown Sand?
147	182	Basalt
182	188	Fractured Basalt with Sediment Infilling
188	195	Dense Basalt
195	197	Sandy Clay
197	375	Black Basalt

COMPILED BY/ORGANIZATION: T.L. Morgan / GAI Date November 9, 1992

WellName: LF2-12A

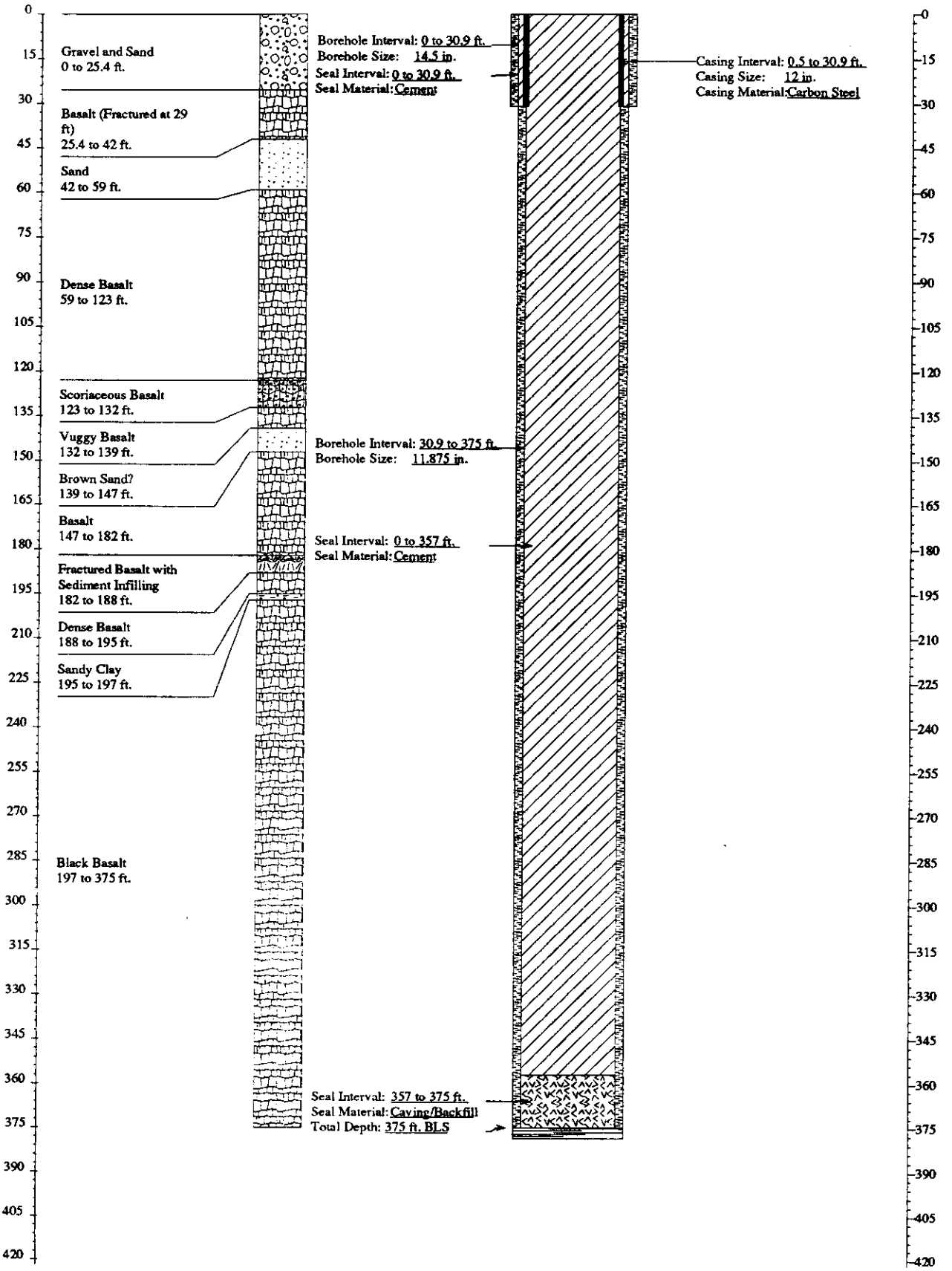
07/27/1993

Facility: CFA
Well Type: NA
Well Status: Abandoned
Year Drilled: 1990
Total Depth: 375

Easting: 294037.19
Northing: 683203.14
Longitude: 1125636.222
Latitude: 433219.526
Completion Depth: 375

Driller: PC Exploration
Geologist: Debbie McElroy
Drilling Method: Mud rotary and air hammer
Drilling Fluid:
Land Surface: 4933.46

Water Level: NF
Water Level Date: NF
Water Level Access: NF



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: CFA | PAGE 1 of 7 | Well Name/No. LF3-01

A. WELL/BORING USE

1) Year drilled: 1987

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) RCRA Monitoring
( ) CERCLA Characterization
( ) Other :_
( ) USGS Observation
(X) No Documented Use

3) Constituents monitored currently: None

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: EG&G (WAG 4) / W.R. Pigott

B. WELL/BORING INFORMATION

1) Construction Category
( ) Surface Percolation Well
( ) Gas Port
( ) Neutron Access Port
(X) Scientific Instrumentation
  ( ) Radioactivity Monitoring Port
  (X) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
( ) None
(X) Vapor Sampler
( ) Gypsum Block
( ) Heat Dissipation Sensor
( ) Lysimeter
( ) Psychrometer
(X) Salinity Probe
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 12.2 ft. Top of basalt = N.F. ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
(X) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes X No _) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes X No _)
4) Does the well contain a survey marker: (Yes X No _)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No _ N/A X)
6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _)

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes _ No _ N/A X)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes _ No _ N/A X Borehole size _ Casing size _)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Protective Cover (carbon steel)	10	0 - 1.5	None	24	N.F.	N/A

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Borehole Fill Material	Interval (feet)	Number of Bentonite Seals	Minimum-Maximum Seal Thickness (inches)
Open Interval (in protective cover)	0 - 1.5	N/A	N/A
Zones of Bentonite, Native Fill, and/or Silica Flour (1)	1.5 - 12.2	1	2 - 2
(1) These intervals are given on the construction diagram at the end of the checklist.			

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3,3,1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No _ N/A X) Explanation See Section d. below.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No _ N/A X) Explanation (Qualify data/specify perched intervals if applicable) The boring is instrumented in the alluvium, the base of which is commonly the first perched interval.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes X No _ N/A _) Explanation A thin layer of bentonite covers each instrumentation zone.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No _ N/A X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Shallow Drilling Report, Ansley, 1988.

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: No Documented Use/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- (X) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- ( ) Boring is not sealed, but remediation is unnecessary.
- ( ) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The boring is completed in the alluvium, and is instrumented with soil monitoring equipment at one or more depths. The instrumented zones are filled with native fill or silica flour and separated by native fill and thin layers of bentonite. The boring is not a well as defined by the State of Idaho.

Deficiencies: None

Remediation: None

GEOLOGIC LOG

Well Name LF3-01

Source: Generalized Lithology Log

****

Interval (feet below surface)

Begin	End	Description
0	12.2	Silty Sandy Gravel
		(Samples taken at 5 ft. centers)

COMPILED BY/ORGANIZATION: T.L. Morgan / GAI Date December 15, 1992

WellName: LF3-01

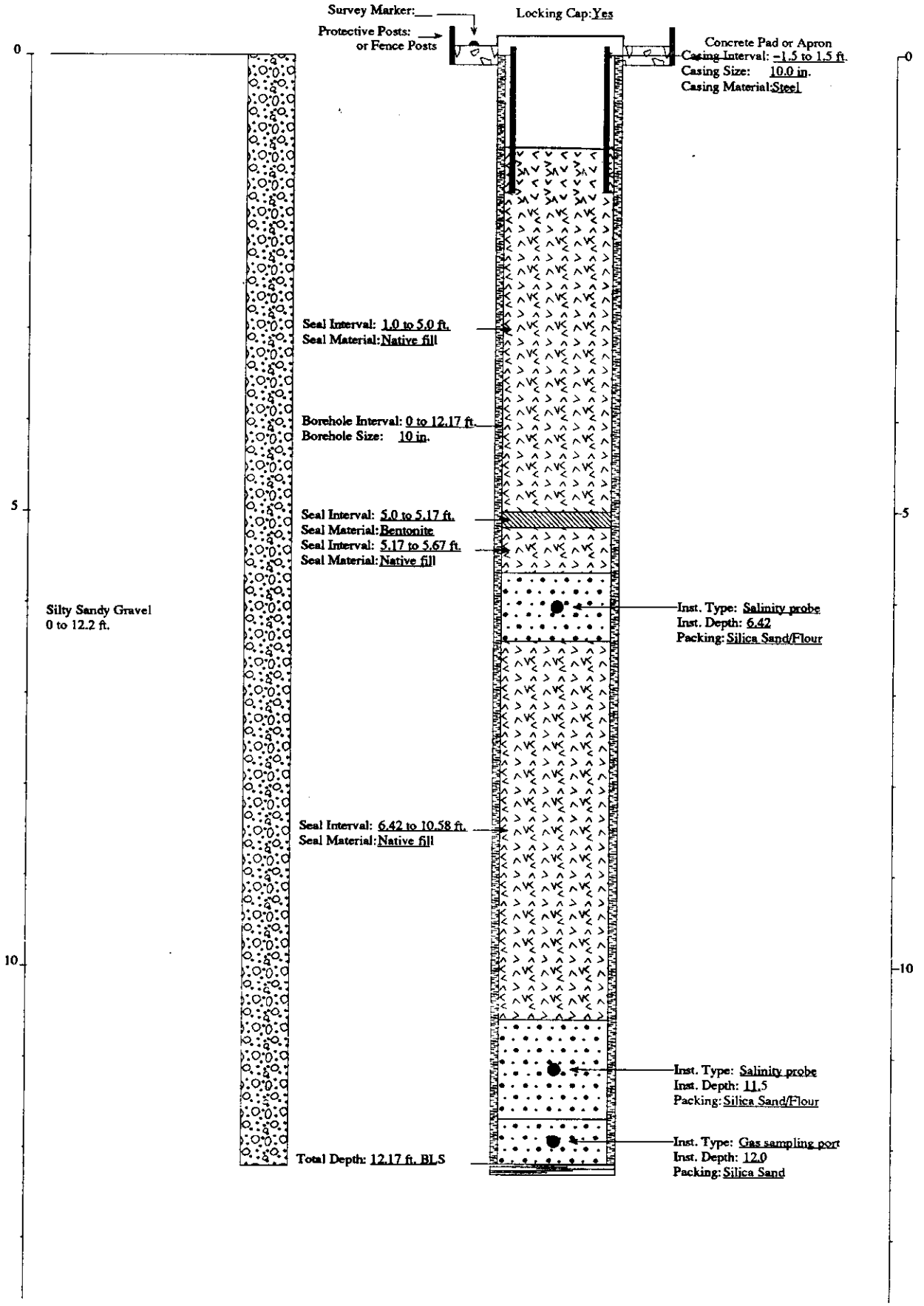
07/07/1993

Facility: CFA
Well Type: Scientific Instrumentation
Well Status: Inactive
Year Drilled: 1987
Total Depth: 12.17

Easting: 292119.00
Northing: 685339.90
Longitude: 1125602.53
Latitude: 433240.45
Completion Depth: NA

Driller: Denning
Geologist: J.Jaacks, B.Freier
Drilling Method: Augering
Drilling Fluid: NF
Land Surface: 4941.3

Water Level: NA
Water Level Date: NA
Water Level Access: NA



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORING/BORINGS

LOCATION: CFA | PAGE 1 of 7 | Well Name/No. LF3-02

A. WELL/BORING USE

1) Year drilled: 1987

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) RCRA Monitoring
( ) CERCLA Characterization
( ) Other :_
( ) USGS Observation
(X) No Documented Use

3) Constituents monitored currently: None

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: EG&G (WAG 4) / W.R. Pigott

B. WELL/BORING INFORMATION

1) Construction Category
( ) Surface Percolation Well
( ) Neutron Access Port
( ) Gas Port
(X) Scientific Instrumentation
  ( ) Radioactivity Monitoring Port
  (X) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
( ) None
(X) Vapor Sampler
( ) Gypsum Block
(X) Heat Dissipation Sensor
( ) Lysimeter
( ) Psychrometer
(X) Salinity Probe
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 16.9 ft. Top of basalt = 16.9 ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
(X) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes X No _) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes X No _)
4) Does the well contain a survey marker: (Yes X No _)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No _ N/A X)
6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _)

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes _ No _ N/A X)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes _ No _ N/A X Borehole size _ Casing size _)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Protective Cover (carbon steel)	10	0 - 1.6	None	17	N.F.	N/A

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Borehole Fill Material	Interval (feet)	Number of Bentonite Seals	Minimum-Maximum Seal Thickness (inches)
Open Interval (in protective cover)	0 - 1.5	N/A	N/A
Zones of Bentonite, Native Fill, and/or Silica Flour [1]	1.5 - 16.9	4	Est. 3 - 6
[1] These itnervals are given on the construction diagram at the end of the checklist.			

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3,3,1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No _ N/A X) Explanation See Section d. below.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No _ N/A X) Explanation (Qualify data/specify perched intervals if applicable) The boring is instrumented in the alluvium, the base of which is commonly the first perched interval.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes X No _ N/A _) Explanation A thin layer of bentonite covers each instrumentation zone.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No _ N/A X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Shallow Drilling Report, Ansley, 1988.

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: No Documented Use/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- (X) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- ( ) Boring is not sealed, but remediation is unnecessary.
- ( ) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The boring is completed in the alluvium and is instrumented with soil monitoring equipment at one or more depths. The instrumented zones are filled with native fill or silica flour and separated by native fill and thin layers of bentonite. The boring is not a well as defined by the State of Idaho.

Deficiencies: None

Remediation: None

GEOLOGIC LOG

Well Name LF3-02

Source: Generalized Lithology Log

****

Interval (feet below surface)

Begin	End	Description
0	16.9	Sand / Gravel / Pebbles
16.9		Black Vesicular Basalt
		(Samples taken at 5 ft. centers)

COMPILED BY/ORGANIZATION: T.L. Morgan / GAI Date December 15, 1992

WellName: LF3-02

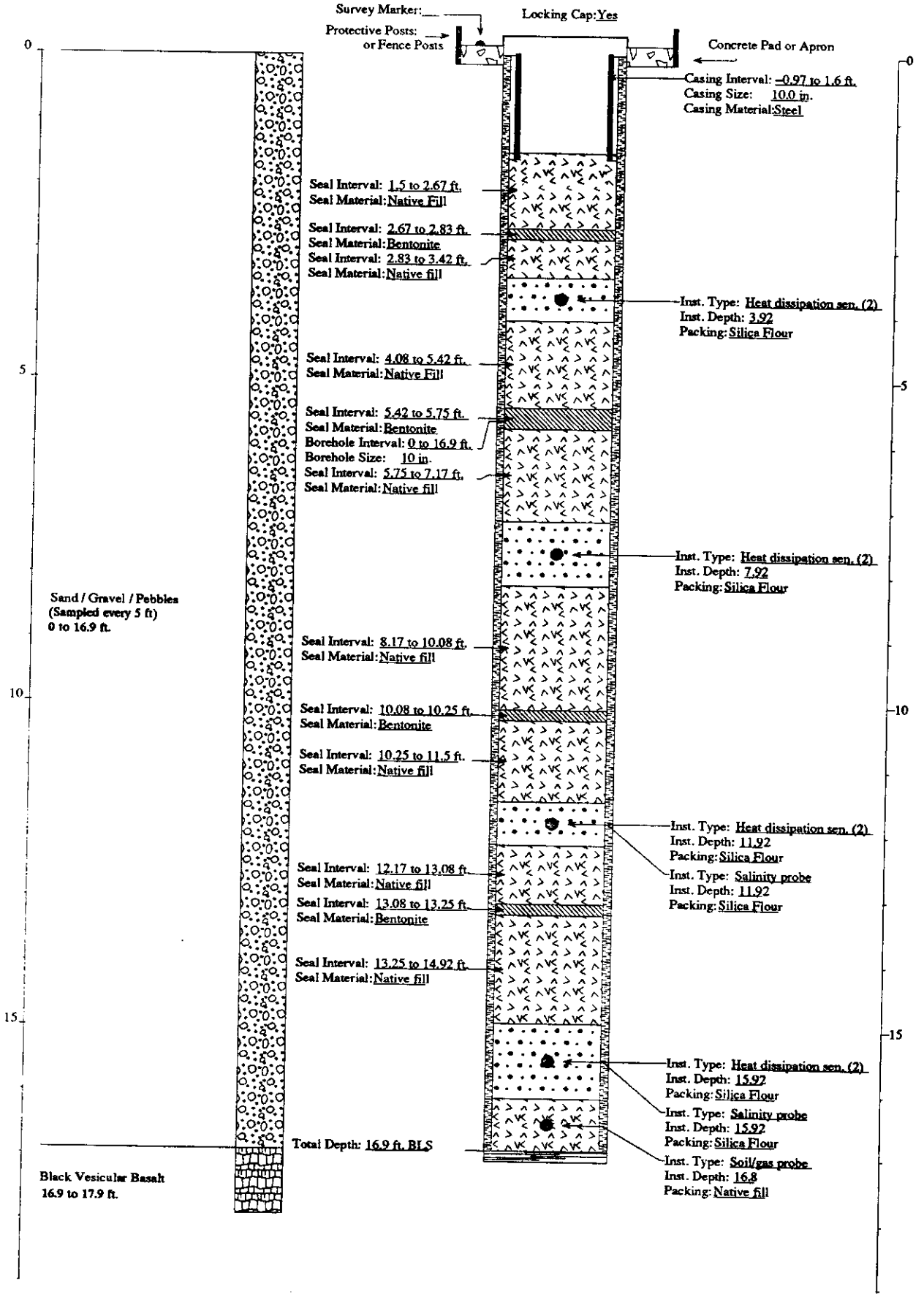
Facility: CFA
Well Type: Scientific Instrumentation
Well Status: Inactive
Year Drilled: 1987
Total Depth: 16.9

Easting: 92039.60
Northing: 684952.50
Longitude: 1125703.56
Latitude: 433236.62
Completion Depth: NA

Driller: Denning
Geologist: J.Jaacks, B.Freier
Drilling Method: Augering
Drilling Fluid: NF
Land Surface: 4941.6

07/07/1993

Water Level: NA
Water Level Date: NA
Water Level Access: NA



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: CFA | PAGE 1 of 7 | Well Name/No. LF3-03

A. WELL/BORING USE

1) Year drilled: 1987

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) RCRA Monitoring
( ) CERCLA Characterization
( ) Other: _
( ) USGS Observation
(X) No Documented Use

3) Constituents monitored currently: None

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: EG&G (WAG 4) / W.R. Pigott

B. WELL/BORING INFORMATION

1) Construction Category
( ) Surface Percolation Well
( ) Gas Port
(X) Neutron Access Port
( ) Scientific Instrumentation
  ( ) Radioactivity Monitoring Port
  ( ) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
(X) None
( ) Vapor Sampler
( ) Gypsum Block
( ) Heat Dissipation Sensor
( ) Lysimeter
( ) Psychrometer
( ) Salinity Probe
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 18.7 ft. Top of basalt = N.F. ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
( ) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes X No _) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes X No _)
4) Does the well contain a survey marker: (Yes X No _)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No _ N/A X)
6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _) Explanation _

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes X No _ N/A _)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes _ No X N/A Borehole size 0.56-inch Casing size 0.56-inch Drilling method Percussion hammer)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Carbon steel (1)	0.56 I.D. or O.D.?	0 - 18.7	N.F.	N.F.	.237	Yes

(1) The pipe has no perforations and is capped at the top and bottom.

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentomite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Fill Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
None	N/A	N/A	N/A

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3.3.1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams, spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No _ N/A X) Explanation See Section d. below.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No _ N/A X) Explanation (Qualify data/specify perched intervals if applicable) The neutron access tube is completed in the alluvium, the base of which is commonly the first perched interval.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes _ No _ N/A X) Explanation Since the monitoring tube was pounded into permeable alluvium, it should not promote vertical fluid migration.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Shallow Drilling Report, Ansley, 1988.

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: No Documented Use/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- ( ) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- (X) Boring is not sealed, but remediation is unnecessary.
- ( ) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The neutron access tube is constructed of 0.56-inch unperforated carbon steel pipe capped at the bottom and top. It was driven into the alluvium using a percussion hammer. The tube is used for monitoring the moisture content in the alluvium and is not a well as defined by the State of Idaho.

Deficiencies: None

Remediation: None

GEOLOGIC LOG

Well Name LF3-03

Source: Construction Data

****

Interval (feet below surface)

Begin	End	Description
0	18.7	Alluvium

COMPILED BY/ORGANIZATION: T.L. Morgan / GAI Date March 9, 1993

WellName: LF3-03

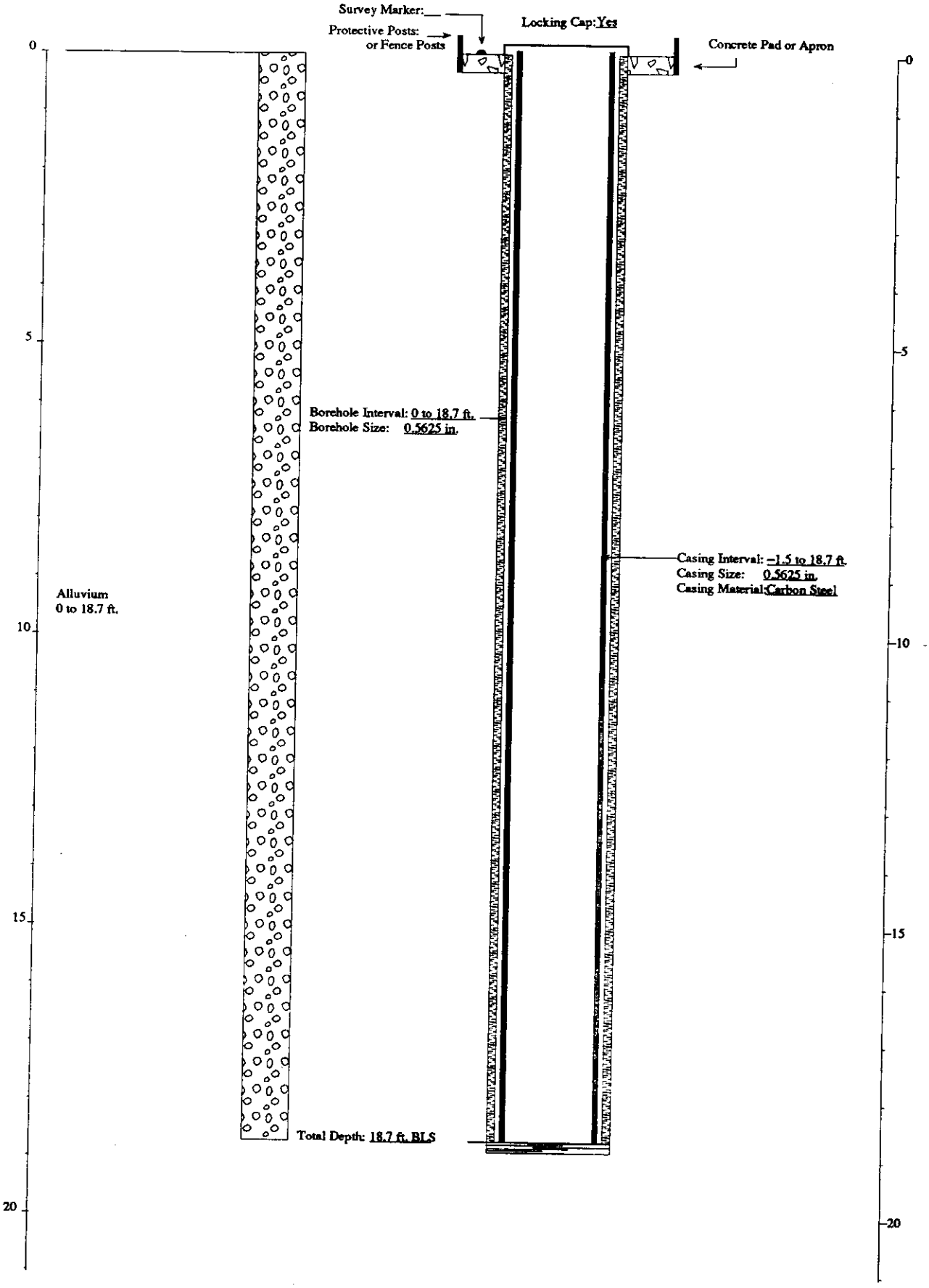
Facility: CFA
Well Type: Neutron Access
Well Status: Inactive
Year Drilled: 1987
Total Depth: 18.7

Easting: 292038.10
Northing: 684944.90
Longitude: 1125603.58
Latitude: 433236.54
Completion Depth: NA

Driller: Denning
Geologist: NF
Drilling Method: Percussion Hammer
Drilling Fluid: NF
Land Surface: 4938.6

06/14/1993

Water Level: NA
Water Level Date: NA
Water Level Access: NA



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: CFA | PAGE 1 of 7 | Well Name/No. LF3-04

A. WELL/BORING USE

1) Year drilled: 1987

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) RCRA Monitoring
( ) CERCLA Characterization
( ) Other :_
( ) USGS Observation
(X) No Documented Use

3) Constituents monitored currently: None

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: EG&G (WAG 4) / W.R. Pigott

B. WELL/BORING INFORMATION

1) Construction Category
( ) Surface Percolation Well
( ) Gas Port
( ) Neutron Access Port
(X) Scientific Instrumentation
  ( ) Radioactivity Monitoring Port
  (X) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
( ) None
(X) Vapor Sampler
( ) Gypsum Block
(X) Heat Dissipation Sensor
( ) Lysimeter
( ) Psychrometer
(X) Salinity Probe
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 11.5 ft. Top of basalt = 11.5 ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
(X) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes X No _) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes X No _)
4) Does the well contain a survey marker: (Yes X No _)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No _ N/A X)
6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _)

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes _ No _ N/A X)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes _ No _ N/A X Borehole size _ Casing size _)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Protective Cover (carbon steel)	10	0 - 1.6	None	15	N.F.	N/A

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Borehole Fill Material	Interval (feet)	Number of Bentonite Seals	Minimum-Maximum Seal Thickness (inches)
Open Interval (in protective cover)	0 - 1.5	N/A	N/A
Zones of Bentonite, Native Fill, and/or Silica Flour [1]	1.5 - 11.5	2	1 - 3
[1] These intervals are given on the construction diagram at the end of the checklist.			

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3,3,1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No _ N/A X) Explanation _

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X N/A _) Explanation (Qualify data/specify perched intervals if applicable) The boring is instrumented in the alluvium, the base of which is commonly the first perched interval.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes X No _ N/A _) Explanation A thin layer of bentonite covers each instrumentation zone.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No _ N/A X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Shallow Drilling Report, Ansley, 1988.

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: No Documented Use/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- (X) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- ( ) Boring is not sealed, but remediation is unnecessary.
- ( ) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The boring is completed in the alluvium and is instrumented with soil monitoring equipment at one or more depths. The instrumented zones are filled with native fill or silica flour and separated by native fill and thin layers of bentonite. The boring is not a well as defined by the State of Idaho.

Deficiencies: None

Remediation: None

GEOLOGIC LOG

Well Name LF3-04

Source: Generalized Lithology Log

****

Interval (feet below surface)

Begin	End	Description
0	2.5	Silty Clay / Gravel / Pebbles
2.5	8	Silty Sand / Gravel
8	11.5	Sand / Gravel
11.5		Black Vesicular Basalt
		(Samples taken at 5 ft. centers)

COMPILED BY/ORGANIZATION: T.L. Morgan / GAI Date December 15, 1992

WellName: LF3–04

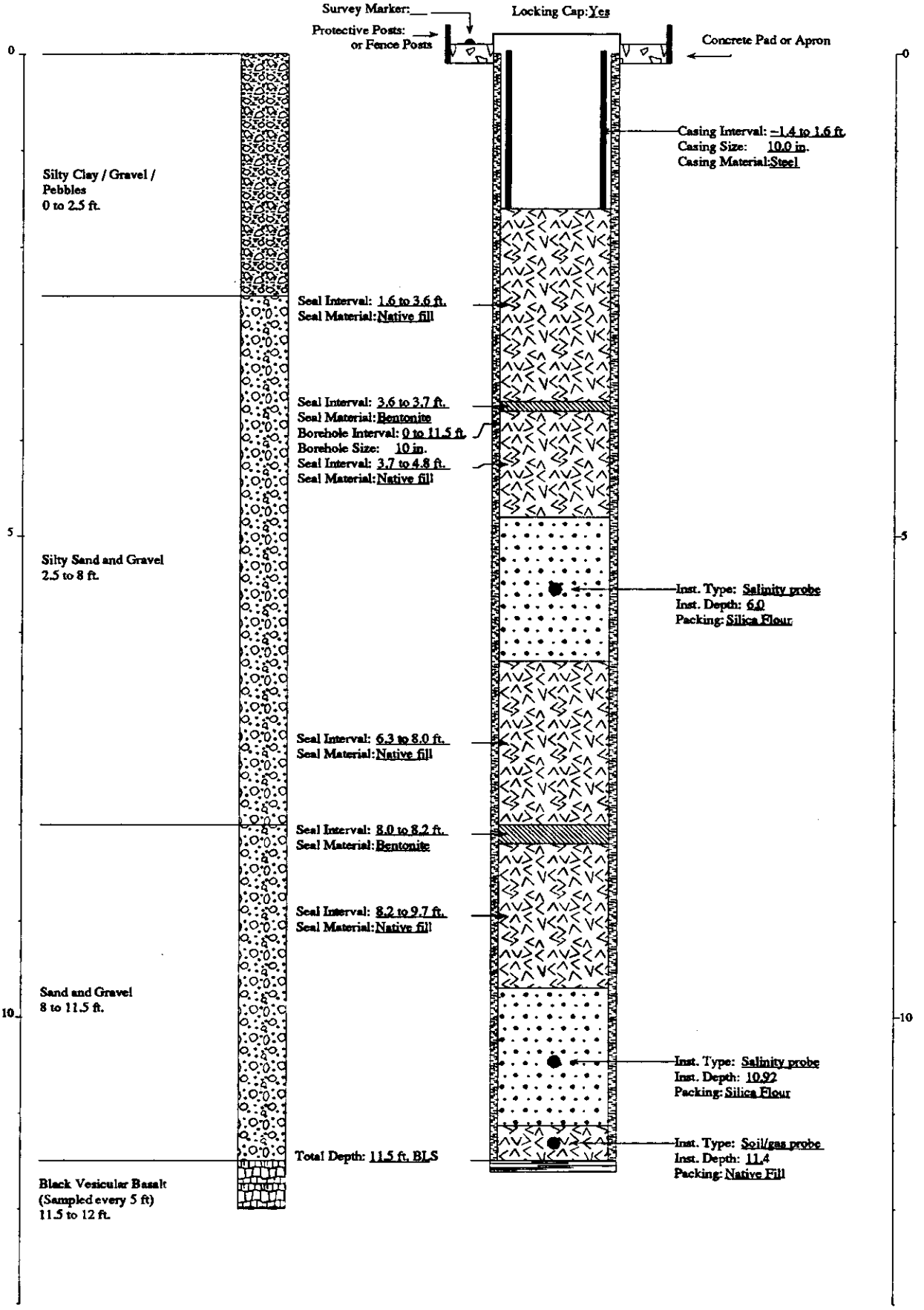
08/24/1993

Facility: CFA
Well Type: Scientific Instrumentation
Well Status: Inactive
Year Drilled: 1987
Total Depth: 11.5

Easting: 291838.80
Northing: 684387.00
Longitude: 1125706.22
Latitude: 433231.01
Completion Depth: NA

Driller: Denning
Geologist: J.Jaacks, B.Freier
Drilling Method: Augering
Drilling Fluid: NF
Land Surface: 4940.10

Water Level: NA
Water Level Date: NA
Water Level Access: NA



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: CFA | PAGE 1 of 7 | Well Name/No. LF3-05

A. WELL/BORING USE

1) Year drilled: 1987

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) RCRA Monitoring
( ) CERCLA Characterization
( ) Other: _
( ) USGS Observation
(X) No Documented Use

3) Constituents monitored currently: None

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: EG&G (WAG 4) / W.R. Pigott

B. WELL/BORING INFORMATION

1) Construction Category
( ) Surface Percolation Well
( ) Gas Port
(X) Neutron Access Port
( ) Scientific Instrumentation
  ( ) Radioactivity Monitoring Port
  ( ) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
(X) None
( ) Vapor Sampler
( ) Gypsum Block
( ) Heat Dissipation Sensor
( ) Lysimeter
( ) Psychrometer
( ) Salinity Probe
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 22.5 ft. Top of basalt = N.F. ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
( ) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes X No _) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes X No _)
4) Does the well contain a survey marker: (Yes X No _)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No _ N/A X)
6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _) Explanation _

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes X No _ N/A _)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes _ No X N/A Borehole size 0.56-inch Casing size 0.56-inch Drilling method Percussion hammer)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Carbon steel (1)	0.56 I.D. or O.D.?	0 - 22.5	N.F.	N.F.	.237	Yes

(1) The pipe has no perforations and is capped at the top and bottom.

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Fill Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
None	N/A	N/A	N/A

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3,3,1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams, spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No _ N/A X) Explanation See Section d. below.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No _ N/A X) Explanation (Qualify data/specify perched intervals if applicable) The neutron access tube is completed in the alluvium, the base of which is commonly the first perched interval.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes _ No _ N/A X) Explanation Since the monitoring tube was pounded into permeable alluvium, it should not promote vertical fluid migration.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: CFA | PAGE 6 of 7 | Well Name/No. LF3-05

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Shallow Drilling Report, Ansley, 1988.

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: No Documented Use/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- ( ) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- (X) Boring is not sealed, but remediation is unnecessary.
- ( ) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The neutron access tube is constructed of 0.56-inch unperforated carbon steel pipe capped at the bottom and top. It was driven into the alluvium using a percussion hammer. The tube is used for monitoring the moisture content in the alluvium and is not a well as defined by the State of Idaho.

Deficiencies: None

Remediation: None

GEOLOGIC LOG

Well Name LF3-05

Source: Construction Data

****

Interval (feet below surface)

Begin	End	Description
0	22.5	Alluvium

COMPILED BY/ORGANIZATION: T.L. Morgan / GAI Date March 9, 1993

WellName: LF3-05

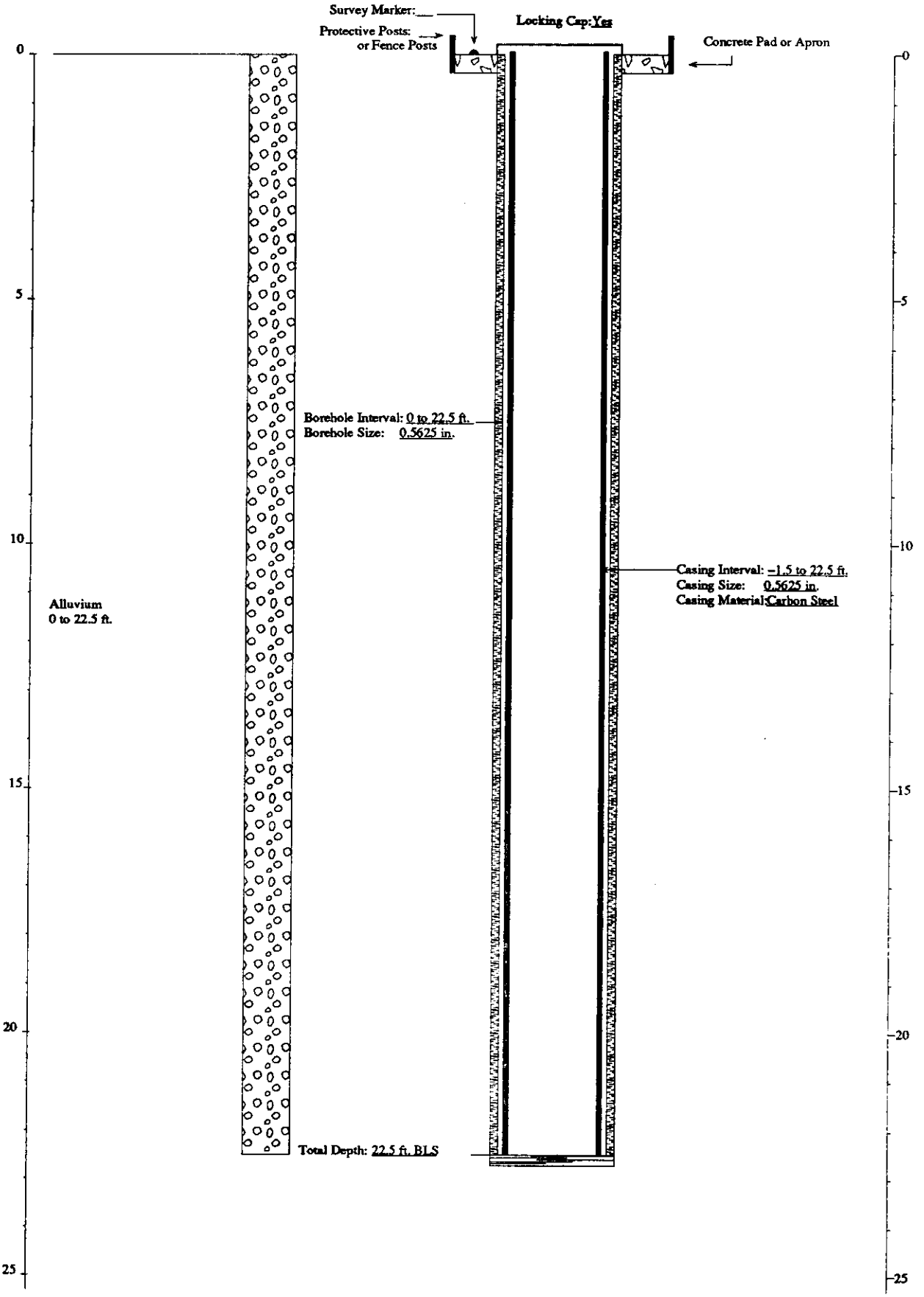
06/14/1993

Facility: CFA
Well Type: Neutron Access
Well Status: Inactive
Year Drilled: 1987
Total Depth: 22.5

Easting: 291674.40
Northing: 683799.90
Longitude: 1125708.37
Latitude: 433225.20
Completion Depth: NA

Driller: Demning
Geologist: NF
Drilling Method: Percussion Hammer
Drilling Fluid: NF
Land Surface: 4941.30

Water Level: NA
Water Level Date: NA
Water Level Access: NA



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: CFA | PAGE 1 of 7 | Well Name/No. LF3-06

A. WELL/BORING USE

1) Year drilled: 1987

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) RCRA Monitoring
( ) CERCLA Characterization
( ) Other :_
( ) USGS Observation
(X) No Documented Use

3) Constituents monitored currently: None

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: EG&G (WAG 4) / W.R. Pigott

B. WELL/BORING INFORMATION

1) Construction Category
( ) Surface Percolation Well
( ) Gas Port
( ) Neutron Access Port
(X) Scientific Instrumentation
  ( ) Radioactivity Monitoring Port
  (X) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
( ) None
(X) Vapor Sampler
( ) Gypsum Block
(X) Heat Dissipation Sensor
( ) Lysimeter
( ) Psychrometer
(X) Salinity Probe
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 26 ft. Top of basalt = N.F. ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
( ) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes X No _) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes X No _)
4) Does the well contain a survey marker: (Yes X No _)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No _ N/A X)
6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _)

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3.11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes _ No _ N/A X)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes _ No _ N/A X Borehole size _ Casing size _)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Protective Cover (carbon steel)	10	0 - 2.2	None	9	N.F.	N/A

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Borehole Fill Material	Interval (feet)	Number of Bentonite Seals	Minimum-Maximum Seal Thickness (inches)
Open Interval (in protective cover)	0 - 1.5	N/A	N/A
Zones of Bentonite, Native Fill, and/or Silica Flour (1)	1.5 - 26	5	2 - 4
(1) These intervals are given on the construction diagram at the end of the checklist.			

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3,3,1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No _ N/A X) Explanation See Section d. below.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No _ N/A X) Explanation (Qualify data/specify perched intervals if applicable) The boring is instrumented in the alluvium, the base of which is commonly the first perched interval.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes X No _ N/A _) Explanation A thin layer of bentonite covers each instrumentation zone.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No _ N/A X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Shallow Drilling Report, Ansley, 1988.

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: No Documented Use/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- (X) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- ( ) Boring is not sealed, but remediation is unnecessary.
- ( ) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The boring is completed in the alluvium and is instrumented with soil monitoring equipment at one or more depths. The instrumented zones are filled with native fill or silica flour and separated by native fill and thin layers of bentonite. The boring is not a well as defined by the State of Idaho.

Deficiencies: None

Remediation: None

GEOLOGIC LOG

Well Name LF3-06

Source: Generalized Lithology Log

****

Interval (feet below surface)

Begin	End	Description
0	17	Silty Sand / Gravels
17	19	Silty Sand / Clay / Gravel
19	26	Clay
		(Samples taken at 5 ft. centers)

COMPILED BY/ORGANIZATION: T.L. Morgan / GAI Date December 15, 1992

WellName: LF3-06

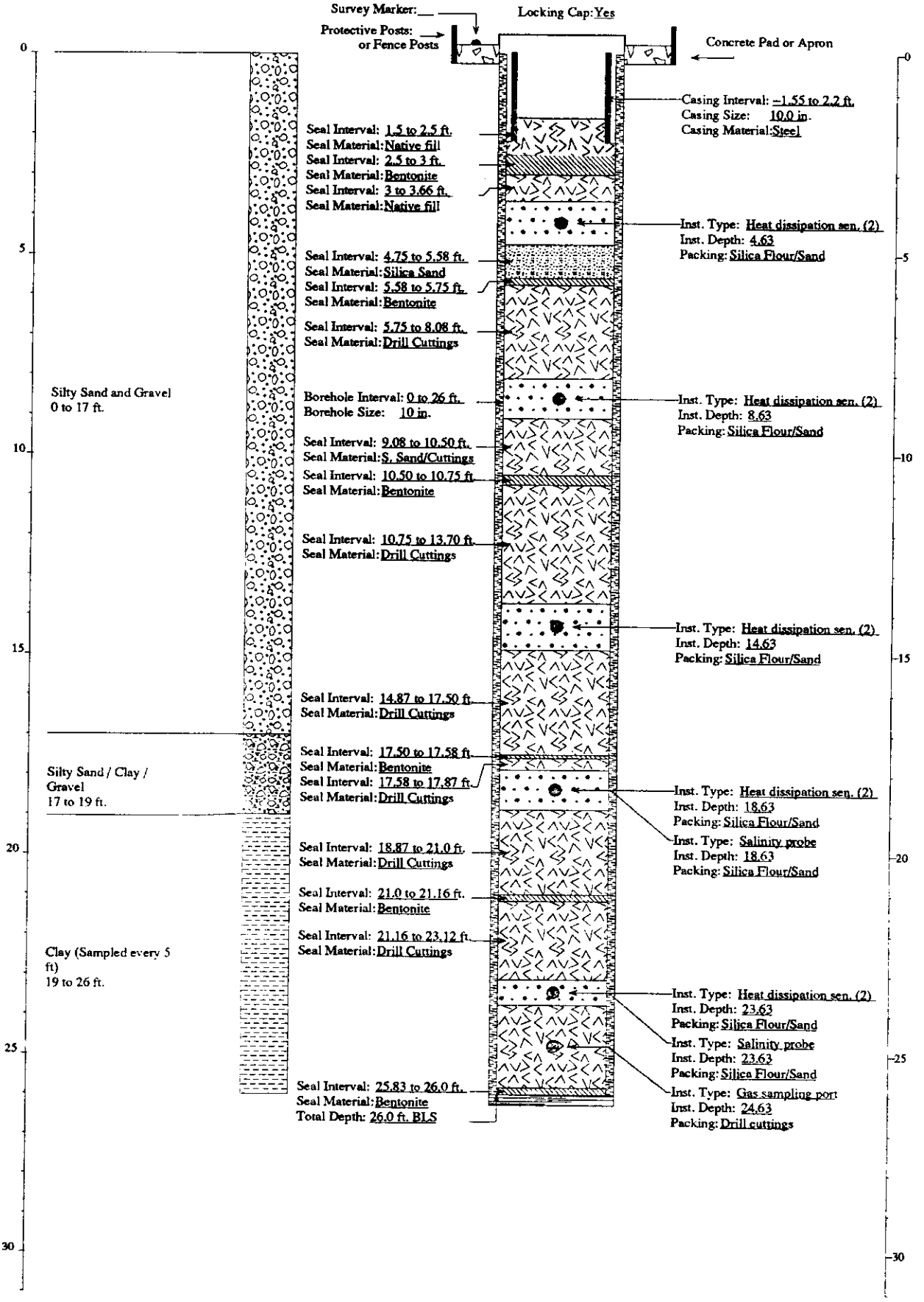
08/11/1993

Facility: CFA
Well Type: Scientific Instrumentation
Well Status: Inactive
Year Drilled: 1987
Total Depth: 26.0

Easting: 292039.60
Northing: 684952.50
Longitude: 1125703.56
Latitude: 433236.62
Completion Depth: NA

Driller: Denning
Geologist: J.Jaacks, B.Freier
Drilling Method: Augering
Drilling Fluid: NF
Land Surface: 4938.5

Water Level: NA
Water Level Date: NA
Water Level Access: NA



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: CFA Well Name/No. LF3-07

A. WELL/BORING USE

1) Year drilled: 1987

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) RCRA Monitoring
( ) CERCLA Characterization
( ) Other :_
( ) USGS Observation
(X) No Documented Use

3) Constituents monitored currently: None

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: EG&G (WAG 4) / W.R. Pigott

B. WELL/BORING INFORMATION

1) Construction Category
( ) Surface Percolation Well
( ) Gas Port
( ) Neutron Access Port
(X) Scientific Instrumentation
  ( ) Radioactivity Monitoring Port
  (X) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
( ) None
(X) Vapor Sampler
( ) Gypsum Block
( ) Heat Dissipation Sensor
( ) Lysimeter
( ) Psychrometer
(X) Salinity Probe
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 18 ft. Top of basalt = 18 ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
( ) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes X No _) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes X No _)
4) Does the well contain a survey marker: (Yes X No _)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No _ N/A X)
6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _)

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes _ No _ N/A X)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes _ No _ N/A X Borehole size _ Casing size _)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Protective Cover (carbon steel)	10	0 - 1.5	None	15	N.F.	N/A

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Borehole Fill Material	Interval (feet)	Number of Bentonite Seals	Minimum-Maximum Seal Thickness (inches)
Open Interval (in protective cover)	0 - 1.5	N/A	N/A
Zones of Bentonite, Native Fill, and/or Silica Flour (1)	1.5 - 18	3	2 - 6.5
(1) These intervals are given on the construction diagram at the end of the checklist.			

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3,3,1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No _ N/A X) Explanation See Section d. below.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No _ N/A X) Explanation (Qualify data/specify perched intervals if applicable) The boring is instrumented in the alluvium, the base of which is commonly the first perched interval.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes X No _ N/A _) Explanation A thin layer of bentonite covers each instrumentation zone.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No _ N/A X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Shallow Drilling Report, Ansley, 1988.

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: No Documented Use/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- (X) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- ( ) Boring is not sealed, but remediation is unnecessary.
- ( ) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The boring is completed in the alluvium and is instrumented with soil monitoring equipment at one or more depths. The instrumented zones are filled with native fill or silica flour and separated by native fill and thin layers of bentonite. The boring is not a well as defined by the State of Idaho.

Deficiencies: None

Remediation: None

GEOLOGIC LOG

Well Name LF3-07

Source: Generalized Lithology Log

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Interval (feet below surface)

Begin	End	Description
0	8	Silty Sand / Gravel / Pebbles
8	18	Sand / Gravel / Pebbles
18		Black Vesicular Basalt
		(Samples taken at 5 ft. intervals)

COMPILED BY/ORGANIZATION: T.L. Morgan / GAI Date December 15, 1992

WellName: LF3-07 Corrections:Set seal top = 1.5 (original NF).

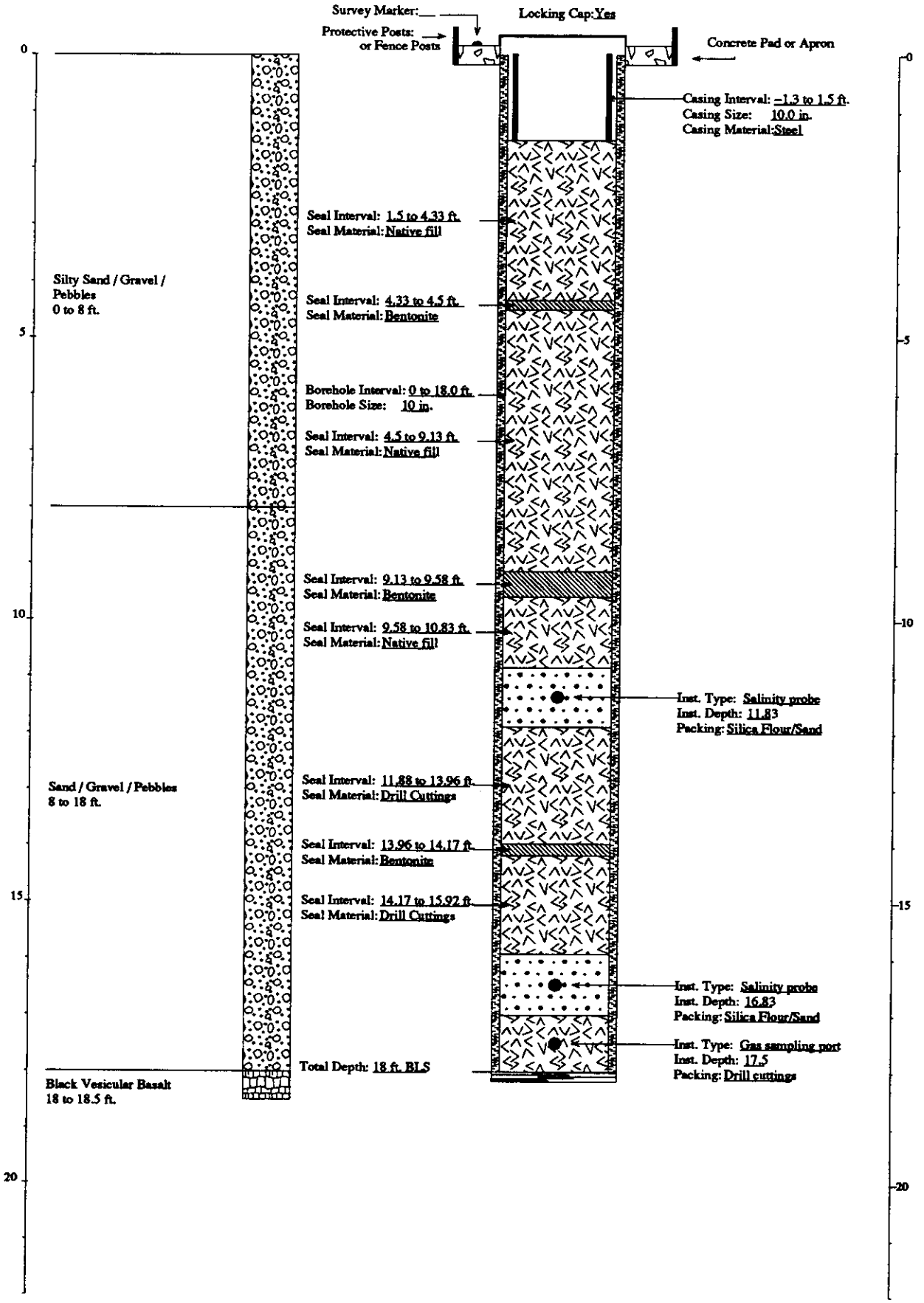
08/15/1993

Facility: CFA
Well Type: Scientific Instrumentation
Well Status: Inactive
Year Drilled: 1987
Total Depth: 18

Easting: 292119.00
Northing: 685339.90
Longitude: 1125602.53
Latitude: 433240.45
Completion Depth: NA

Driller: Denning
Geologist: J.Jaacks, B. Freier
Drilling Method: Augering
Drilling Fluid: NF
Land Surface: 4936.9

Water Level: NA
Water Level Date: NA
Water Level Access: NA



FITNESS-FOR-USE CHECKLIST FOR AQUIFER AND PERCHED GROUNDWATER MONITORING/OBSERVATION WELLS

LOCATION: CFA Well Name/No. LF3-08

A. WELL USES

1) Year well was drilled: 1988

2) Current use for well:
( )DOE 5400.1 Monitoring
( )RCRA Monitoring ( )USGS Observation
( )CERCLA Characterization ( )No Documented Use
(X)Other: Proposed for CERCLA monitoring starting in summer of 1993.

3) Constituents monitored currently: None

4) Water level monitored: (Yes _ No X Insufficient data _)

5) Is the well used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well used or proposed for compliance/detection monitoring:
(Yes X No _) If yes, specify regulating program plan: Landfill II and III RI/FS (number not designated yet)

7) Responsible organization/Contact person: EG&G (WAG 4) / W.R. Pigott

B. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells are being resurveyed as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890). The project started in the summer of 1992.

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes X No _) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes X No _)
4) Does the well contain a survey marker: (Yes X No _)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No _ N/A X)
6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _)

C. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ Insufficient Data _)
b) Access to measure water levels: (Yes X No _ Insufficient Data _)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes _ No _ N/A X)

b) If well is completed in alluvium, is borehole size at least 2 inches greater than the O.D. of casing: (Yes _ No _ N/A X
Borehole size _ Casing size _)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater:
(Yes _ No X N/A _)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to top of bedrock: (Yes _ No X Borehole size 12-inch Casing size 12-inch (I.D. or O.D.?)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Steel (surface casing)	12 I.D. or O.D.?	0 - 17	Welded	0	.25	Yes
Carbon Steel	6 I.D. or O.D.?	0 - 460	N.F.	14	N.F.	N.F.
Dielectric Coupling	N.F.	460	N.F.	N/A	N/A	N/A
Stainless Steel	6 I.D.	460 - 500	Flush-threaded	N/A	N.F.	N.F.

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Fill Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
Expanding Cement	0 - 494 (between casings 0-17 feet)	13 yd^3 grout	Yes
Bentonite	494 - 497.5	4 buckets	Yes
.25-inch Pea Gravel	497.5 - 512	1/4 yd^3 pea gravel	Yes
Expanding Grout	512 - 526	N.F.	Yes

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in the alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced (provide intervals if there was more than one grouting event): N/A X Uncertain/not documented _ Explanation for seal emplacement The surface casing was driven to 17 feet bls and therefore not sealed on the outside. A tremie pipe was used to install the other casing seals.

State of Idaho Reg. 3,3,1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes X No _) Explanation The well is located about 80 feet south of the CFA Landfill III boundary.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X Insufficient data _) Explanation (Qualify data/specify perched intervals if applicable) No evidence of perched water was found in the End-of-Well Report or on the neutron and gamma-gamma logs.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: Yes, the annular space above the gravel pack is adequately sealed. The surface casing was driven and therefore no annulus exits around the casing.

4) Gravel Pack. Does the well contain a gravel pack: (Yes X No _) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes X No _) Explanation The borehole was sealed by bentonite pellets and grout above the gravel pack and by grout below the gravel pack.

D. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes X No _). (If no, proceed to section E)

The State of Idaho Well Construction Regulations and INEL Best Management Practices that overlap with RCRA guidelines and regulations will not be duplicated in this section.

1) Were the drill rig, equipment, casing and screen steam cleaned before drilling and installation: (Yes _ No _ No documentation X) Explanation _

2) Were drilling additives used: (Yes _ No _ Uncertain/No documentation X) Drilling Method Air Rotary Additive(s)/Quality Water and/or foam were used as needed. The foam may only have been used in the surficial sediments, but the End-of-Well Report is not clear concerning this.

3) Are the casing (that portion which is within the sampling interval), the screen, the pump and the pump discharge pipe constructed of nonreactive material which does not affect/interfere with chemical, physical, biological or radiological constituents of interests: (Yes X No _)

	Material
Casing	Stainless steel
Screen	Stainless steel (500-510 feet bls)
Pump	HydroStar piston pump
Discharge Pipe	Stainless steel

Explanation Stainless steel is acceptable for compliance/detection monitoring.

4) Is the screen factory fabricated: (Yes X No _ No screen _) Type 6-inch I.D. wire-wrapped well screen, type 304, with 0.02-inch slots and end cap

5) Is the monitoring interval adequate to detect the contaminants of concern, i.e. "floaters", "sinkers" or dissolved constituents: (Yes X No _) Explanation The water table, which is at about 486 feet bls, occurs above the gravel pack; therefore, the well monitors only dissolved constituents.

6) Is the monitoring interval greater than 30 feet in length: (Yes _ No X) or does the well monitor more than one type of lithology: (Yes _ No X) Monitoring interval(s) 497.5 - 512 feet bls. The well monitors a discrete interval of about 14.5 feet.

7) Is the filter pack present: (Yes X No _) If yes, is the filter pack comprised of chemically inert material: (Yes _ No _ Uncertain X N/A _) Does it extend no more than 2 feet above screen: (Yes X No _ N/A_) Filter pack type .25-inch pea gravel Filter pack interval 497.5 - 512 feet bls (extends about 2.5 feet above screen)

8) Has the well been developed to ensure turbid free groundwater samples, i.e. <5 NTUs: (Yes _ No _ Not Documented X) and to restore the natural hydraulic conductivity of the formation, i.e. stabilization of parameters: (Yes _No _ Not Documented X) Well development type and duration 1050 gallons of water were pumped from the well. It is uncertain if the well is developed enough to pump clear water since the lower 5 feet of the well may have filled with silt.

9) Is the pump intake location documented: (Yes X No _) Depth 503 feet

10) Does the pump type collect representative ground-water samples: (Yes _ No _ Not Documented _) Type HydroStar piston pump Explanation Report EGG-WM-9787 indicates that gas piston pumps, submersible pumps and bailers produced nearly equal results for selected volatile organics at TAN. However, State Report OPTR 91-01, indicates that the use of the HydroStar pump may contribute chromium to groundwater samples.

E. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: End-of-Well Report, EGG-WM-9787, State Report OPTR 91-01, Review of well fitness checklist by Shannon Ansley, EG&G (April 1993)

N.F. - Not Found/No Documentation
N/A - Not Applicable

F. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: Proposed for CERCLA/State Regulations and INEL Best Management Practices

( ) Well complies with applicable regulations and is acceptable for intended use.
( ) Well complies with applicable regulations except for minor construction details and is acceptable for intended use.
(X) Well does not meet applicable regulations, a variance should be obtained. If variance not obtained, remediation is required to comply with the regulations.
( ) Well does not meet applicable regulations and intended use, remediation is required.
( ) Well does not meet applicable regulations and should not be used for this purpose.
( ) Insufficient/uncertain data is available to evaluate compliance to the regulations.
( ) Abandonment, well is unneeded or cannot be remediated.

Deficiencies: The well does not have a surface seal as required by state regulations. Since the surface casing was driven and the remainder of the annular space is sealed above the monitored zone, a variance should be requested for the lack of this seal. In addition, the following minor deficiencies were noted: the borehole is not the required 2 inches larger than the surface casing diameter but is about the same size, and the thicknesses of the 6-inch casings and one of the casing joint types were not documented. Although the 12-inch casing has no stickup, it is adequately sealed from surface contamination by the concrete pad and cement grout between the casings.

Remediation: None

G. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: Proposed for CERCLA/RCRA Guidelines

( ) Well complies with applicable regulations and is acceptable for intended use.
( ) Well complies with applicable regulations except for minor details and is acceptable for intended use.
( ) Well does not meet applicable regulations, a variance should be obtained. If variance not obtained, remediation is required to comply with the regulations.
(X) Well does not meet applicable regulations and intended use, remediation is required.
( ) Well does not meet applicable regulations and should not be used for this purpose.
( ) Insufficient/uncertain data is available to evaluate compliance to the regulations.
( ) Abandonment, well is unneeded or cannot be remediated.

Deficiencies: The well complies with state regulations to the extent indicated in the preceding section. The well may not comply with RCRA guidelines because the bottom 5 feet of the well may be filled with silt. Also, the following minor deficiencies were noted: the decontamination procedures were not documented, additional information is needed concerning the use of foam in the well, the HydroStar pump may contribute chromium to the groundwater samples and the surface casing was not sealed in the borehole.

Remediation: The silt should be cleaned out of the bottom of the well in order to produce representative, turbid-free groundwater samples.

GEOLOGIC LOG

Well Name LF3-08

Source: EG&G Generalized Lithology Log

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Interval (feet below surface)

Begin	End	Description
0	17	Silt and Clayey Gravel
17	26	Void (?)
26	55	Gray Basalt (Fractured 36-39 feet)
55	65	Brown Silty Sand
65	106	Gray Basalt (Fractured 79-81 feet)
106	115	Gray to Brown Fractured Basalt
115	150	Red-Brown to Gray Basalt (Fractured 137-140 feet)
150	200	Silt and Clay Interlayered with Basalt
200	235	Gray to Red-Brown Basalt
235	240	Fractured Basalt
240	310	Gray to Red-Brown Basalt
310	340	Fractured Basalt
340	355	Basalt / Clay Fracture Fill
355	526	Basalt

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date August 15, 1992

WellName: LF3-08

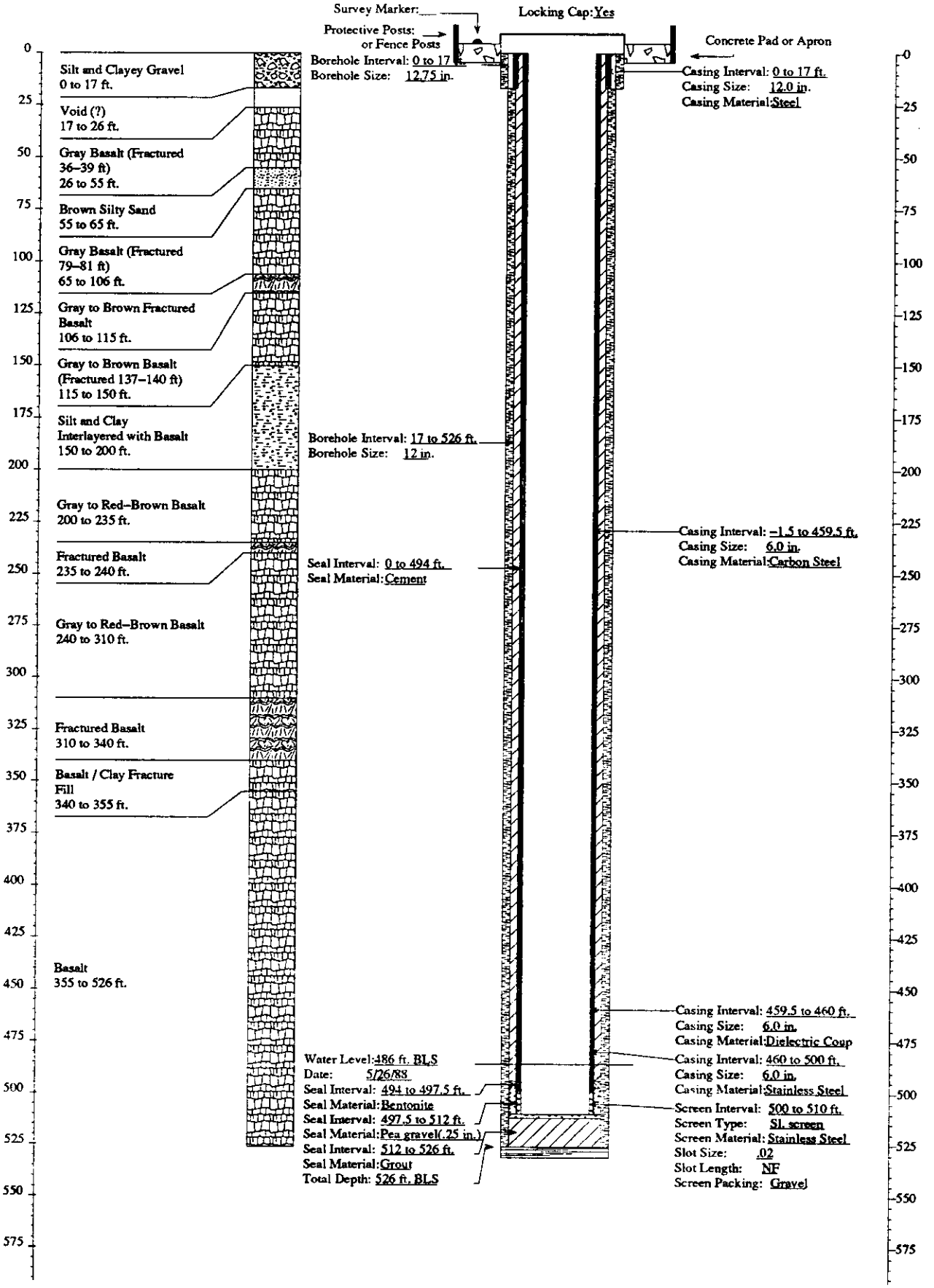
07/07/1993

Facility: CFA
Well Type: Observation Well
Well Status: Inactive
Year Drilled: 1988
Total Depth: 526

Easting: 291537.83
Northing: 683111.80
Longitude: 1125710.00
Latitude: 433218.00
Completion Depth: 510

Driller: Denning
Geologist: J. Jaacks, T. Dube
Drilling Method: Air rotary
Drilling Fluid: NF
Land Surface: 4942

Water Level: 486
Water Level Date: 5/26/88
Water Level Access: NF



FITNESS-FOR-USE CHECKLIST FOR AQUIFER AND PERCHED GROUNDWATER MONITORING/OBSERVATION WELLS

LOCATION: CFA Well Name/No. LF3-09

A. WELL USES

1) Year well was drilled: 1990

2) Current use for well:
( )DOE 5400.1 Monitoring
( )RCRA Monitoring ( )USGS Observation
( )CERCLA Characterization ( )No Documented Use
(X)Other: Proposed for CERCLA monitoring starting in summer of 1993.

3) Constituents monitored currently: None

4) Water level monitored: (Yes _ No X Insufficient data _)

5) Is the well used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well used or proposed for compliance/detection monitoring:
(Yes X No _) If yes, specify regulating program plan: Landfill II and III RI/FS (number not designated yet)

7) Responsible organization/Contact person: EG&G (WAG 4) / W.R. Pigott

B. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells are being resurveyed as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890). The project started in the summer of 1992.

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes X No _) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes X No _)
4) Does the well contain a survey marker: (Yes X No _)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No _ N/A X)
6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _)

C. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ Insufficient Data _)
b) Access to measure water levels: (Yes X No _ Insufficient Data _)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes _ No _ N/A X)

b) If well is completed in alluvium, is borehole size at least 2 inches greater than the O.D. of casing: (Yes _ No _ N/A X
Borehole size _ Casing size _)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater:
(Yes _ No X N/A _) Explanation However, the casing extends 4.5 feet into bedrock.

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to top of bedrock: (Yes X No _ Borehole size 14.5-inch Casing size 12-inch I.D.)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Carbon Steel (Protective Cover)	6	0 - 4.8	None	14	N/A	N/A
Steel	12 I.D. (surface casing)	0 - 14.5	Welded	0	N.F.	N.F.
Passivated Stainless Steel (Schedule 10S)	4.5 O.D.	0 - 480	Flush-threaded	N.F.	0.12	No

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Fill Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
Cement Grout	0 - 17.5	10 bags Portland cement / 20 lbs. bentonite / 20 lbs. CaCl / 70 gallons water	Yes
Cement Grout	0-474.7 (between casings)	More than 7 yd^3 cement	Yes
Bentonite Pellets	474.7 - 480	25 gallons (hydrated)	Yes
Silica Sand	480 - 514 (?)	33 bags 6-9 mesh sand, 1 bag 10/20 mesh sand	Yes
Silica Sand	514 (?) - 517	2 bags 8-12 mesh sand	Yes
Cement Grout		31.5 yd^3 grout with sand, bentonite and CaCl used to stabilize borehole.	Yes

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in the alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes X No Uncertain/Not documented _) Explanation The casing is sealed from 0 to 17.5 feet bls (7.5 feet into bedrock).

b) If the seal is documented, how was it emplaced (provide intervals if there was more than one grouting event): N/A _ Uncertain/not documented _ Explanation for seal emplacement The surface seal was pressure grouted. A tremie pipe was used to install the filter pack, the bentonite and the other cement seals.

State of Idaho Reg. 3,3,1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes X No _) Explanation The well is located in proximity to CFA Landfill III.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X Insufficient data _) Explanation (Qualify data/specify perched intervals if applicable) No evidence of perched water was found in the End-of-Well Report or on the 1990 gamma-gamma log.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: Yes, the annular spaces above the gravel pack were sealed.

4) Gravel Pack. Does the well contain a gravel pack: (Yes X No _) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes X No _) Explanation The borehole was sealed with bentonite pellets and grout above the gravel pack.

D. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes X No _). (If no, proceed to section E)

The State of Idaho Well Construction Regulations and INEL Best Management Practices that overlap with RCRA guidelines and regulations will not be duplicated in this section.

1) Were the drill rig, equipment, casing and screen steam cleaned before drilling and installation: (Yes X No _ No documentation _) Explanation The decontamination procedures are documented in the logbooks.

2) Were drilling additives used: (Yes _ No X Uncertain/No documentation X) Drilling Method Air Rotary and Mud Rotary Additive(s)/Quality Although mud rotary was used 0-17.5 feet bls, no fluids other than air were used below this depth.

3) Are the casing (that portion which is within the sampling interval), the screen, the pump and the pump discharge pipe constructed of nonreactive material which does not affect/interfere with chemical, physical, biological or radiological constituents of interests: (Yes X No _)

	Material
Casing	Passivated stainless steel
Screen	Passivated stainless steel
Pump	HydroStar piston pump
Discharge Pipe	Passivated stainless steel

Explanation Stainless steel is acceptable for compliance/detection monitoring.

4) Is the screen factory fabricated: (Yes X No _ No screen _) Type 4-inch, stainless steel screen, type 304, with 0.02-inch slots and end cap.

5 Is the monitoring interval adequate to detect the contaminants of concern, i.e. "floaters", "sinkers" or dissolved constituents: (Yes X No _) Explanation The water table occurs within the gravel pack; therefore, the well monitors both "floaters" and dissolved constituents.

6) Is the monitoring interval greater than 30 feet in length: (Yes _ No X) or does the well monitor more than one type of lithology: (Yes _ No X) Monitoring interval Water table (about 485 feet bls) to 514 feet bls. The well monitors a discrete interval of about 29 feet.

7) Is the filter pack present: (Yes X No _) If yes, is the filter pack comprised of chemically inert material: (Yes X No _ Uncertain _ N/A _) Does it extend no more than 2 feet above screen: (Yes _ No X N/A_) Filter pack type 6/10, 8/12 and 10/20 silica sand Filter pack interval 480-517 feet bls. The top of the filter pack and screen are both at about 480 feet bls.

8) Has the well been developed to ensure turbid free groundwater samples, i.e. <5 NTUs: (Yes _ No _ Not Documented X) and to restore the natural hydraulic conductivity of the formation, i.e. stabilization of parameters: (Yes X No _ Uncertain/Not Documented _) Well development type and duration The well was surged for 40 minutes and then 300 gallons of water were pumped from the well until the water was clear and the parameters stabilized. These values are documented in the field logbooks.

9) Is the pump intake location documented: (Yes X No _) Depth 493 feet

10) Does the pump type collect representative ground-water samples: (Yes _ No _ Not Documented _) Type HydroStar piston pump Explanation Report EGG-WM-9787 indicates that gas piston pumps, submersible pumps and bailers produced nearly equal results for selected volatile organics at TAN. However, State Report OPTR 91-01, indicates that the use of the HydroStar pump may contribute chromium to groundwater samples.

E. **THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES:** End-of-Well Report (Rev. 01-92), EGG-WM-9787, State Report OPTR 91-01, Review of well fitness checklist by Shannon Ansley, EG&G (April 1993)

N.F. - Not Found/No Documentation
N/A - Not Applicable

F. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: Proposed for CERCLA/State Regulations and INEL Best Management Practices

( ) Well complies with applicable regulations and is acceptable for intended use.
( ) Well complies with applicable regulations except for minor construction details and is acceptable for intended use.
(X) Well does not meet applicable regulations, a variance should be obtained. If variance not obtained, remediation is required to comply with the regulations.
( ) Well does not meet applicable regulations and intended use, remediation is required.
( ) Well does not meet applicable regulations and should not be used for this purpose.
( ) Insufficient/uncertain data is available to evaluate compliance to the regulations.
( ) Abandonment, well is unneeded or cannot be remediated.

Deficiencies: The well construction does not comply with state regulations because the stainless steel well casing is approximately one-half of the minimum thickness specification; therefore, a variance should be requested. In addition, the 4-inch casing stick-up and the 12-inch casing thickness were not documented, which are minor deficiencies. Although the 12-inch casing has no stick-up, it is adequately sealed from surface contamination.

Remediation: None

FITNESS-FOR-USE CHECKLIST FOR AQUIFER AND PERCHED GROUNDWATER MONITORING/OBSERVATION WELLS

G. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: Proposed for CERCLA/RCRA Guidelines

( ) Well complies with applicable regulations and is acceptable for intended use.
(X) Well complies with applicable regulations except for minor details and is acceptable for intended use.
( ) Well does not meet applicable regulations, a variance should be obtained. If variance not obtained, remediation is required to comply with the regulations.
( ) Well does not meet applicable regulations and intended use, remediation is required.
( ) Well does not meet applicable regulations and should not be used for this purpose.
( ) Insufficient/uncertain data is available to evaluate compliance to the regulations.
( ) Abandonment, well is unneeded or cannot be remediated.

Deficiencies: The well complies with state regulations to the extent indicated in the preceding section. The well complies with RCRA guidelines except for the use of the HydroStar pump, which may contribute chromium to the groundwater samples, and the lack of a surface casing seal. These are minor deficiencies.

Remediation: None

GEOLOGIC LOG

Well Name LF3-09

Source: EG&E Generalized Lithology Log

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Interval (feet below surface)

Begin	End	Description
0	10	Sand / Gravel / Silt
10	55	Black Basalt (Possible Rubble Zone 51-52 feet)
55	72	Red Silty Sand with Gravel
72	93	Black Basalt
93	120	Black Fractured Basalt
120	150	Gray-Black Basalt
150	155	Red Silty Sand with Gravel
155	198	Black Basalt
198	210	Red Cinder Zone
210	325	Basalt
325	330	Red to Brown Interbed
330	352	Basalt
352	357	Interbed
357	418	Basalt
418	427	Cinder Zone
427	450	Basalt
450	452	Possible Cinder Zone
452	517	Basalt (Highly Fractured at 469 feet)

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date August 15, 1992

WellName: LF3–09

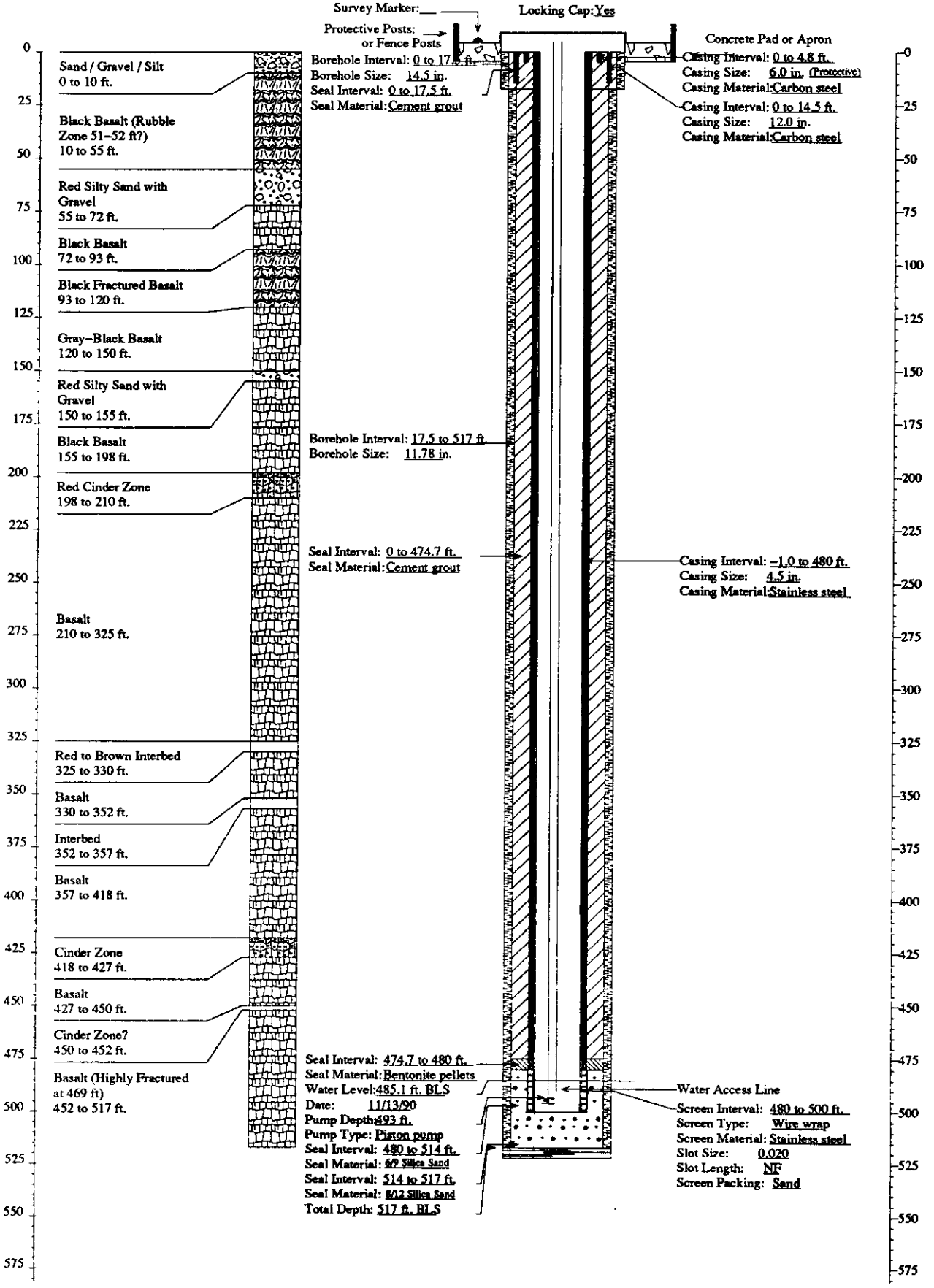
07/01/1993

Facility: CFA
Well Type: Observation Well
Well Status: Inactive
Year Drilled: 1990
Total Depth: 517

Easting: 294194.66
Northing: 682898.62
Longitude: 1125634.045
Latitude: 433216.533
Completion Depth: 500

Driller: PC Exploration
Geologist: K.Manchester/B.Higgs
Drilling Method: Mud rotary and air hammer
Drilling Fluid: Drilling mud
Land Surface: 4942.33

Water Level: 485.1
Water Level Date: 11/13/90
Water Level Access: Hole



FITNESS-FOR-USE CHECKLIST FOR AQUIFER AND PERCHED GROUNDWATER MONITORING/OBSERVATION WELLS

LOCATION: CFA Well Name/No. LF3-10

A. WELL USES

1) Year well was drilled: 1990

2) Current use for well:
( )DOE 5400.1 Monitoring
( )RCRA Monitoring ( )USGS Observation
( )CERCLA Characterization ( )No Documented Use
(X)Other: Proposed for CERCLA monitoring starting in summer of 1993.

3) Constituents monitored currently: None

4) Water level monitored: (Yes _ No X Insufficient data _)

5) Is the well used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well used or proposed for compliance/detection monitoring:
(Yes X No _) If yes, specify regulating program plan: Landfill II and III RI/FS (number not designated yet)

7) Responsible organization/Contact person: EG&G (WAG 4) / W.R. Pigott

B. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells are being resurveyed as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890). The project started in the summer of 1992.

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes X No _) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes X No _)
4) Does the well contain a survey marker: (Yes X No _)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No _ N/A X)
6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _)

C. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ Insufficient Data _)
b) Access to measure water levels: (Yes X No _ Insufficient Data _)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes _ No _ N/A X)

b) If well is completed in alluvium, is borehole size at least 2 inches greater than the O.D. of casing: (Yes _ No _ N/A X
Borehole size _ Casing size _)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater:
(Yes X No _ N/A _)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to top of bedrock: (Yes X No _ Borehole size 14.5-inch Casing size 12-inch I.D. or O.D?)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Carbon Steel (Protective Cover)	6 I.D.	0 - 4	None	18	N/A	N/A
Carbon Steel (Surface Casing)	12 I.D. or O.D.?	0 - 33	N.F.	0	N.F.	N.F.
Passivated Stainless Steel (Schedule 10S)	4.26 I.D.	0 - 481	Flush-threaded	24	0.12	No

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

FITNESS-FOR-USE CHECKLIST FOR AQUIFER AND PERCHED GROUNDWATER MONITORING/OBSERVATION WELLS

LOCATION: CFA Well Name/No. LF3-10

Annular Fill Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
Cement Bentonite Grout	0 - 33	Cement grout with bentonite and sand	Yes
Cement Bentonite Grout	0 - 466.1 (between casings 0-33 ft.)	9+ yd^3 cement grout with bentonite and sand	Yes
Bentonite Pellets (Hydrated)	466.1 - 471.5	25 gallons	Yes
10/20 Silica Sand	471.5 - 473	5 gallons	N/A
6/9 Silica Sand	473 - 522	314 gallons (445 gallons of water added to borehole during sand and bentonite placement)	N/A
Cuttings/Cavings	522 - 530	N.F.	No
Cement Bentonite Grout		28 yd^3 cement grout with bentonite and sand $\pm$ $CaCl_2$ to stabilize borehole during drilling	Yes

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in the alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes X No Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced (provide intervals if there was more than one grouting event): N/A _ Uncertain/not documented _ Explanation for seal emplacement The surface casing was pressure grouted. A tremie pipe was used to install the filter pack, the bentonite and the other cement seals.

State of Idaho Reg. 3,3,1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes X No _) Explanation The well is located in proximity to CFA Landfill III.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X Insufficient data _) Explanation (Qualify data/specify perched intervals if applicable) No evidence of perched water was found in the End-of-Well Report or on the gamma-gamma log.

e) Is the casing sealed adequately to prevent ground water movement within the annular space: Yes, all of the annular spaces above the gravel pack are sealed.

4) Gravel Pack. Does the well contain a gravel pack: (Yes X No _) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes X No _) Explanation The borehole was sealed with bentonite pellets and expanding cement above the gravel pack.

D. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes X No _). (If no, proceed to section E)

The State of Idaho Well Construction Regulations and INEL Best Management Practices that overlap with RCRA guidelines and regulations will not be duplicated in this section.

1) Were the drill rig, equipment, casing and screen steam cleaned before drilling and installation: (Yes X No _ Not Documented _) Explanation The air hammer, drill collar and pipe were decontaminated when the rig was switched from mud to air rotary drilling. The tremie pipe was decontaminated before the filter pack was installed.

2) Were drilling additives used: (Yes _ No X Uncertain/No documentation _) Drilling Method Mud rotary 0-33 feet, air rotary below 33 feet bls Additive(s)/Quality No drilling additives were used below 33 feet bls.

3) Are the casing (that portion which is within the sampling interval), the screen, the pump and the pump discharge pipe constructed of nonreactive material which does not affect/interfere with chemical, physical, biological or radiological constituents of interests: (Yes X No _)

Material

Casing Passivated stainless steel
Screen Passivated stainless steel
Pump HydroStar piston pump
Discharge Pipe Passivated stainless steel
Explanation Stainless steel is acceptable for compliance/detection monitoring.

4) Is the screen factory fabricated: (Yes X No _ No screen _) Type 4-inch I.D. wire-wrapped well screen, type 304, with 0.02-inch slots and end cap.

5) Is the monitoring interval adequate to detect the contaminants of concern, i.e. "floaters", "sinkers" or dissolved constituents: (Yes X No _) Explanation The water table, which is at about 486 feet bls, occurs within the gravel pack; therefore, the well monitors both "floaters" and dissolved constituents.

6) Is the monitoring interval greater than 30 feet in length: (Yes X No _) or does the well monitor more than one type of lithology: (Yes _ No _ Uncertain X) Monitoring interval(s) Water table (about 486 feet bls) to 522 feet bls (bottom of filter pack) or 530 feet bls (if the 8 feet of cuttings/caved material in the bottom of the borehole acts as an extenstion of the gravel pack). The interval of from 36 to 44 feet may be considered excessive and includes broken basalt and may include several cinder zones.

7) Is the filter pack present: (Yes X No _) If yes, is the filter pack comprised of chemically inert material (Yes X No _ N/A _) Does it extend no more than 2 feet above screen: (Yes X No _ N/A _) Filter pack type 10/20 and 6/9 Silica Sand Filter pack interval 471.5-522 feet bls (extends 9.5 feet above screen).

8) Has the well been developed to ensure turbid free groundwater samples, i.e. <5 NTUs: (Yes _ No _ Not Documented X) and to restore the natural hydraulic conductivity of the formation, i.e. stabilization of parameters: (Yes _ No _ Not Documented X) Well development type and duration The well was surged for 80 minutes and then was purged of 300 gallons of water using a submersible pump. Specific conductance, pH, dissolved oxygen and temperature were measured during development. The values are documented in the project logbook.

9) Is the pump intake location documented: (Yes X No _) Depth 493.75 feet

10) Does the pump type collect representative ground-water samples: (Yes _ No _ Not Documented _) Type HydroStar piston pump Explanation Report EGG-WM-9787 indicates that gas piston pumps, submersible pumps and bailers produced nearly equal results for selected volatile organics at TAN. However, State Report OPTR 91-01 indicates that the use of the HydroStar pump may contribute chromium to groundwater samples.

E. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: EGG-WM-9787, State Report OPTR 91-01, End-of-Well Report (Rev. 01-92), Review of well fitness checklist by Shannon Ansley, EG&G (April 1993)

N.F. - Not Found/No Documentation
N/A - Not Applicable

F. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: Proposed for CLERCA/State Regulations and INEL Best Management Practices

( ) Well complies with applicable regulations and is acceptable for intended use.
( ) Well complies with applicable regulations except for minor construction details and is acceptable for intended use.
(X) Well does not meet applicable regulations, a variance should be obtained. If variance not obtained, remediation is required to comply with the regulations.
( ) Well does not meet applicable regulations and intended use, remediation is required.
( ) Well does not meet applicable regulations and should not be used for this purpose.
( ) Insufficient/uncertain data is available to evaluate compliance to the regulations.
( ) Abandonment, well is unneeded or cannot be remediated.

Deficiencies: The well does not comply with state regulations because the stainless steel casing thickness is schedule 10, approximately one-half of the state minimum thickness specification; therefore, a variance should be requested. Also, the 12-inch casing thickness and joint type were not documented, which are minor deficiencies. Although the 12-inch casing has no stick-up, the well is adequately sealed from surface contamination.

Remediation: None

G. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: Proposed for CERCLA/RCRA Guidelines

( ) Well complies with applicable regulations and is acceptable for intended use.
( ) Well complies with applicable regulations except for minor details and is acceptable for intended use.
(X) Well does not meet applicable regulations, a variance should be obtained. If variance not obtained, remediation is required to comply with the regulations.
( ) Well does not meet applicable regulations and intended use, remediation is required.
( ) Well does not meet applicable regulations and should not be used for this purpose.
( ) Insufficient/uncertain data is available to evaluate compliance to the regulations.
( ) Abandonment, well is unneeded or cannot be remediated.

Deficiencies: The well complies with state regulations to the extent indicated in Section F. The well may not comply with RCRA guidelines because the monitoring interval may be considered excessive for compliance monitoring and may result in the dilution of contaminant concentrations. Although the distance from the water table to the base of the filter pack is only 34 feet, eight feet of cuttings and cavings in the bottom of the borehole may act as an extension of the filter pack. Also, the monitored zone may not be discrete since it may contain a broken zone and several cinder zones; however, the well is completed in an appropriate permeable interval at the top of the aquifer. Therefore, a variance should be requested before the well is used for RCRA purposes. The use of the HydroStar pump, which may contribute chromium to the groundwater samples and the lack of a surface casing seal are minor deficiencies.

Remediation: None

GEOLOGIC LOG

Well Name LF3-10

Source: EG&G Generalized Lithologic Log

****

Interval (feet below surface)

Begin	End	Description
0	28	Silt and Sand
28	55	Dense Gray Basalt (Vesicular at 45 ft.)
55	72	Sand to Clayey Sand / Cinders at Top
72	92	Black to Gray Basalt
92	97	Red Clayey Sand
97	107	Basalt
107	115	Dark Gray Sand
115	150	Basalt
150	190	Red-Brown Sand with Interbedded Basalt
190	240	Black to Gray Basalt
240	248	Brown-Red Clayey Sand
248	305	Black Basalt
305	320	Reddish-Brown Silty Sand
320	385	Black Basalt
385	400	Brown Silty Sand
400	409	Basalt
409	412	Fractured Basalt
412	518	Basalt (Possible Cinder Zones at 486 ft, 490-495 and 504-513 feet)
518	522	Broken Basalt
522	530	Basalt

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date August 15, 1992

WellName: LF3-10

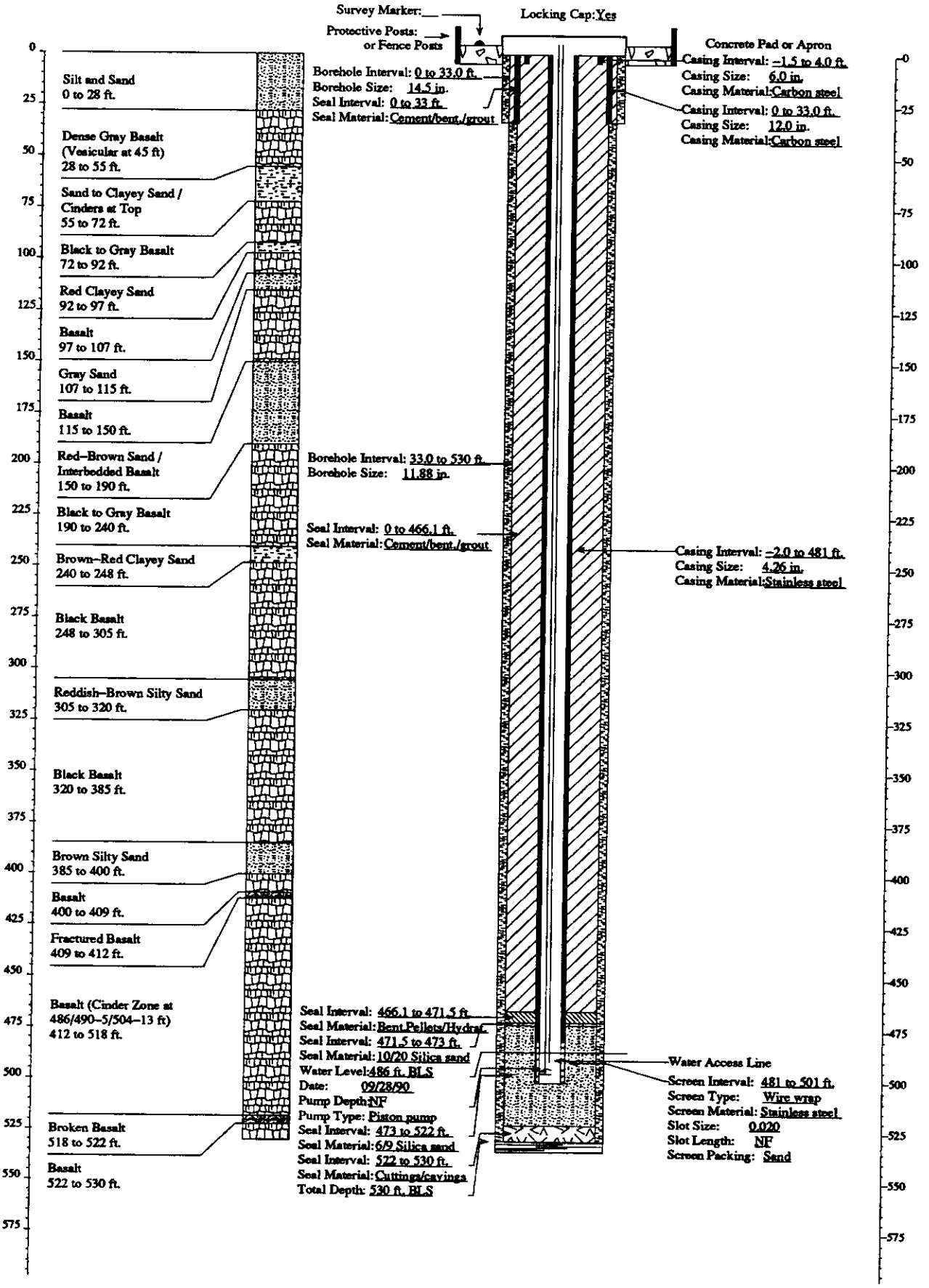
08/17/1993

Facility: CFA
Well Type: Observation Well
Well Status: Inactive
Year Drilled: 1990
Total Depth: 530

Easting: 290875.41
Northing: 683528.93
Longitude: 1125719.185
Latitude: 433222.44
Completion Depth: 501

Driller: PC Exploration
Geologist: David Burgess
Drilling Method: Mud rotary and air hammer
Drilling Fluid: Drilling mud
Land Surface: 4943.87

Water Level: 486
Water Level Date: 09/28/90
Water Level Access: Hole



FITNESS-FOR-USE CHECKLIST FOR AQUIFER AND PERCHED GROUNDWATER MONITORING/OBSERVATION WELLS

LOCATION: CFA Well Name/No. LF3-11

A. WELL USES

1) Year well was drilled: 1990

2) Current use for well:
( )DOE 5400.1 Monitoring
( )RCRA Monitoring ( )USGS Observation
( )CERCLA Characterization ( )No Documented Use
(X)Other: Proposed for CERCLA monitoring starting in summer of 1993.

3) Constituents monitored currently: None

4) Water level monitored: (Yes _ No X Insufficient data _)

5) Is the well used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well used or proposed for compliance/detection monitoring:
(Yes X No _) If yes, specify regulating program plan: Landfill II and III RI/FS (number not designated yet)

7) Responsible organization/Contact person: EG&G (WAG 4) / W.R. Pigott

B. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells are being resurveyed as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890). The project started in the summer of 1992.

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes X No _) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes X No _)
4) Does the well contain a survey marker: (Yes X No _)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No _ N/A X)
6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _)

C. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ Insufficient Data _)
b) Access to measure water levels: (Yes X No _ Insufficient Data _)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes _ No _ N/A X)

b) If well is completed in alluvium, is borehole size at least 2 inches greater than the O.D. of casing: (Yes _ No _ N/A X
Borehole size _ Casing size _)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater:
(Yes X No _ N/A _)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to top of bedrock:(Yes X No _ Borehole size 14.75-inch Casing size 12-inch I.D.)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Carbon Steel (Protective Cover)	6 I.D.	0 - 4	None	21	N/A	N/A
Steel (Surface Casing)	12 I.D.	0 - 29.5	N.F.	0	N.F.	N.F.
Passivated Stainless Steel (Schedule 10S)	4.5 O.D.	0 - 472.2	Flush-threaded	24	0.12	No

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Fill Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
Cement Bentonite Grout	0 - 29.5	14 bags cement/.7 bag bentonite/140 gallons water	Yes
Cement Bentonite Grout	0 - 458.2 (between casings 0-29.5 ft.)	19 yd^3 cement with sand and bentonite	Yes
Bentonite Pellets (Hydrated)	458.2 - 463.3	25 gallons Volclay Pure Gold and 75 gallons water	Yes
10/20 Silica Sand	463.3 - 464.5	1 bag	N/A
6/9 Silica Sand	464.5 - 532	50 bags	N/A
Cement Bentonite Grout		25.5+ yd^3 cement with bentonite and sand $\pm$ $CaCl_2$ to stabilize borehole during drilling	Yes

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in the alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes X No Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced (provide intervals if there was more than one grouting event): N/A _ Uncertain/not documented X Explanation for seal emplacement The surface casing was pressure grouted. A tremie pipe was used to install the filter pack, the bentonite and the other cement seals.

State of Idaho Reg. 3.3.1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes X No _) Explanation The well is located in proximity to CFA Landfill III.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X Insufficient data _) Explanation (Qualify data/specify perched intervals if applicable) No indication of perched water was found in the End-of-Well Report or on the gamma-gamma log.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: Yes, all of the annular spaces above the gravel pack are sealed.

4) Gravel Pack. Does the well contain a gravel pack: (Yes X No _) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes X No _) Explanation The borehole was sealed with bentonite pellets and grout above the gravel pack.

D. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes X No _). (If no, proceed to section E)

The State of Idaho Well Construction Regulations and INEL Best Management Practices that overlap with RCRA guidelines and regulations will not be duplicated in this section.

1) Were the drill rig, equipment, casing and screen steam cleaned before drilling and installation: (Yes X No _ Not fully documented _) Explanation The drill rig was decontaminated before drilling. The decontamination procedures are documented in the project logbooks.

2) Were drilling additives used: (Yes _ No X Uncertain/No documentation _) Drilling Method Mud rotary 0-29.5 feet bls, air rotary below 29.5 feet bls Additive(s)/Quality No drilling additives were used below 29.5 feet bls.

3) Are the casing (that portion which is within the sampling interval), the screen, the pump and the pump discharge pipe constructed of nonreactive material which does not affect/interfere with chemical, physical, biological or radiological constituents of interests: (Yes X No _)

	Material
Casing	Passivated stainless steel
Screen	Passivated stainless steel (472.2-492.2 feet bls)
Pump	HydroStar piston pump
Discharge Pipe	Passivated stainless steel

Explanation Stainless steel is acceptable for compliance/detection monitoring.

4) Is the screen factory fabricated: (Yes X No _ No screen _) Type 4-inch I.D. wire-wrapped screen, type 304, with 0.02-inch slots, end cap and centralizer

5) Is the monitoring interval adequate to detect the contaminants of concern, i.e. "floaters", "sinkers" or dissolved constituents: (Yes X No _) Explanation The water table, which is at about 478 feet bls, occurs within the gravel pack; therefore, the well monitors both "floaters" and dissolved constituents.

6) Is the monitoring interval greater than 30 feet in length: (Yes X No _) or does the well monitor more than one type of lithology: (Yes _ No X) Monitoring interval Water table (about 478 feet bls) to 532 feet bls. The well monitors a zone of about 54 feet, which is excessive.

7) Is the filter pack present: (Yes X No _) If yes, is the filter pack comprised of chemically inert material: (Yes X No _ Uncertain _ N/A _) Does it extend no more than 2 feet above screen: (Yes X No _ N/A_) Filter pack type 6/9 and 10/20 silica sand Filter pack interval 463.3-532 feet bls (extends about 9 feet above screen).

8) Has the well been developed to ensure turbid free groundwater samples, i.e. <5 NTUs: (Yes _ No _ Not Documented X) and to restore the natural hydraulic conductivity of the formation, i.e. stabilization of parameters: (Yes X Not _ Uncertain/Not Documented _) Well development type and duration The well was surged for 55 minutes and then purged of 300 gallons of water until the water was clear and the pH, dissolved oxygen, specific conductance and temperature stabilized. These values are documented in the project logbooks.

9) Is the pump intake location documented: (Yes X No _) Depth 486.1 feet

10) Does the pump type collect representative ground-water samples: (Yes _ No _ Not Documented _) Type HydroStar piston pump Explanation Report EGG-WM-9787 indicates that gas piston pumps, submersible pumps and bailers produced nearly equal results for selected volatile organics at TAN. However, State Report OPTR 91-01 indicates that the use of the HydroStar pump may contribute chromium to groundwater samples.

E. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: EGG-WM-9787, State Report OPTR 91-01, End-of-Well Report (Rev. 01-92), Review of well fitness checklist by Shannon Ansley, EG&G (April 1993)

N.F. - Not Found/No Documentation
N/A - Not Applicable

F. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: Proposed for CERCLA/State Regulations and INEL Best Management Practices

( ) Well complies with applicable regulations and is acceptable for intended use.
( ) Well complies with applicable regulations except for minor construction details and is acceptable for intended use.
(X) Well does not meet applicable regulations, a variance should be obtained. If variance not obtained, remediation is required to comply with the regulations.
( ) Well does not meet applicable regulations and intended use, remediation is required.
( ) Well does not meet applicable regulations and should not be used for this purpose.
( ) Insufficient/uncertain data is available to evaluate compliance to the regulations.
( ) Abandonment, well is unneeded or cannot be remediated.

Deficiencies: The thickness of the stainless steel casing is schedule 10, which is approximately one-half of the state minimum thickness specification; therefore, a variance should be requested. Also, the 12-inch casing thickness and joint type were not documented, which are minor deficiencies. Although the 12-inch casing has no stick-up, the well is adequately sealed from surface contamination.

Remediation: None

G. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: Proposed for CERCLA/RCRA Guidelines

( ) Well complies with applicable regulations and is acceptable for intended use.
( ) Well complies with applicable regulations except for minor details and is acceptable for intended use.
(X) Well does not meet applicable regulations, a variance should be obtained. If variance not obtained, remediation is required to comply with the regulations.
( ) Well does not meet applicable regulations and intended use, remediation is required.
( ) Well does not meet applicable regulations and should not be used for this purpose.
( ) Insufficient/uncertain data is available to evaluate compliance to the regulations.
( ) Abandonment, well is unneeded or cannot be remediated.

Deficiencies: The well complies with state regulations to the extent indicated in the preceding section. The well may not comply with RCRA guidelines because the monitoring interval of 54 feet may be considered excessive for compliance/detection monitoring and may result in the dilution of contaminant concentrations. Since the well appears to monitor only one type of lithology, a variance should be requested for this before the well is used for RCRA purposes. Also, the use of the HydroStar pump, which may contribute chromium to the groundwater samples, and the lack of a surface casing seal are minor deficiencies.

Remediation: None

GEOLOGIC LOG

Well Name LF3-11

Source: EG&G Generalized Lithologic Log

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Interval (feet below surface)

Begin	End	Description
0	21.5	Sand and Gravel
21.5	40	Black Basalt/Fractured in Upper Part
40	52	Red Silty Sand
52	140	Gray Basalt
140	185	Sand and Cinders Interbedded with Basalt
185	195	Red Sediment with Basalt
195	240	Basalt
240	245	Red Sediment
245	345	Basalt (Fracture Zone at 265 ft.)
345	355	Orange Sand
355	380	Red-Gray Basalt
380	398	Cinders
398	405	Basalt
405	415	Red Sand with Silt and Clay
415	532	Basalt

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date August 15, 1992

WellName: LF3-11

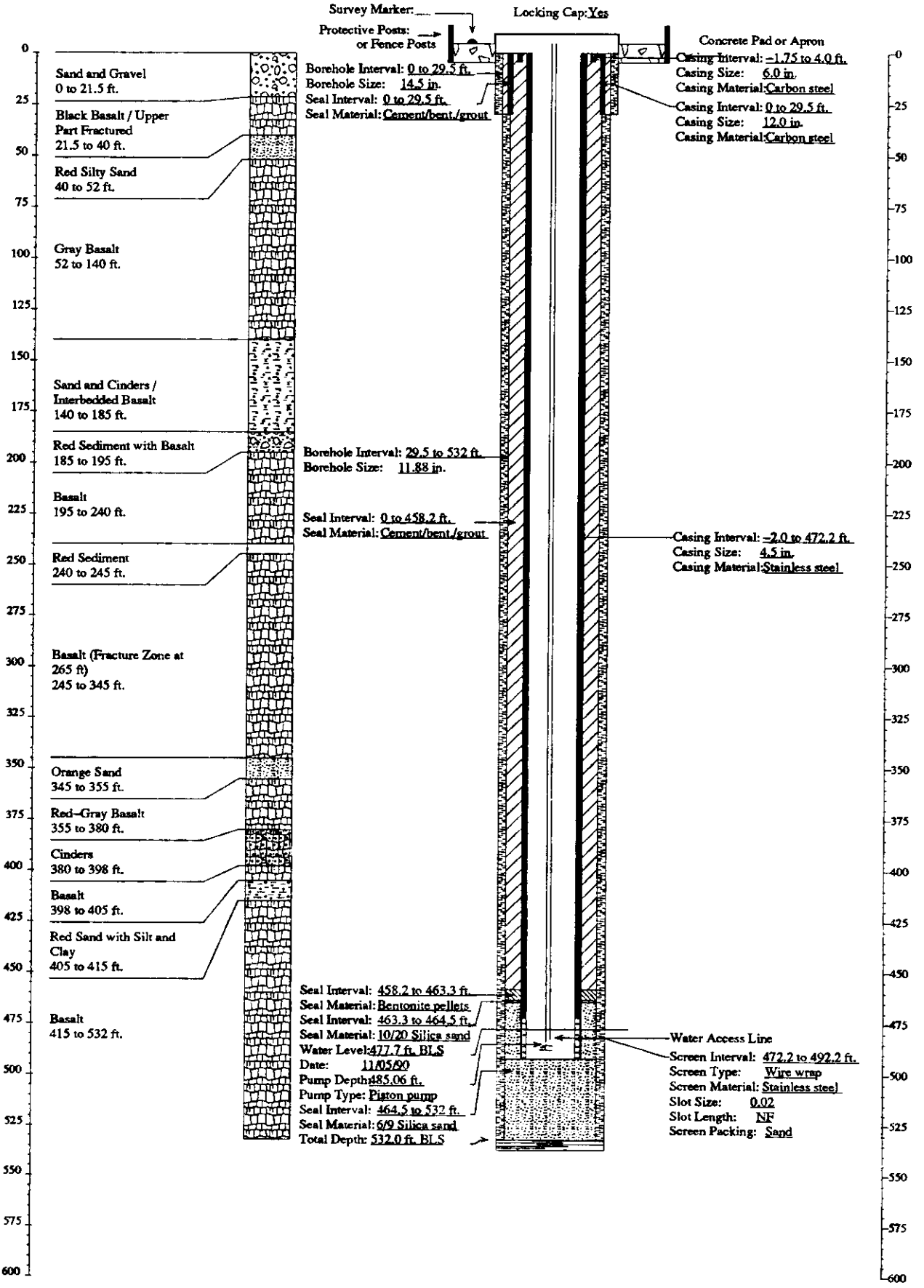
08/27/1993

Facility: CFA
Well Type: Observation Well
Well Status: Inactive
Year Drilled: 1990
Total Depth: 532.0

Easting: 292682.55
Northing: 686243.56
Longitude: 1125654.999
Latitude: 433249.427
Completion Depth: 492.2

Driller: P.C. Exploration
Geologist: Kenneth Manchester
Drilling Method: Mud rotary & air hammer
Drilling Fluid: Drilling mud
Land Surface: 4935.44

Water Level: 477.7
Water Level Date: 11/05/90
Water Level Access: Hole



CHECKLIST FOR ABANDONED/DESTROYED WELLS AND BORINGS

Location CFA Well Name/No. LF3-11A

A. Sources for Well Abandonment

1) What sources indicated that the well was plugged or destroyed:
( ) Comprehensive Well Survey status: N.F.
( ) INEL Well Catalog (field survey by K. Beard) _
( ) Personal communication _
(X) Other End of Well Report.

2) Was the well located by field inspection and documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380)
( ) Well was located by field inspection.
(X) Well was not located by field inspection.

B. Abandonment Procedures

1) How was the well abandoned or destroyed:
( ) Backfilled
( ) Buried
(X) Grouted
( ) Other
( ) Not documented

2) List procedure and amounts of material used to abandon the well:
The casing was cut off 12 inches below land surface. The well was sealed with 10 yd^3 of cement poured on top of 100 gallons of hydrated bentonite. A 1-foot square concrete pad with a brass survey marker was placed over the well.

C. Well Casing

1) Does the well contain surface or other well casing:
Yes X No _ Not Documented _

2) Was the annular space between the casing and borehole grouted:
Yes X No _ Not Documented _ N/A _

D. Compliance with State Regulations

State of Idaho Reg.3,12.1. Permanently abandoned wells may have the casing removed or left in place and shall be filled with bentonite grout, cement grout, concrete, puddling clay, or other material as required to stop the upward or downward movement of water and prevent the waste and/or contamination of the ground water.

1) Total depth of well 497 ft. Top of basalt 28 ft.

CHECKLIST FOR ABANDONED/DESTROYED WELLS AND BORINGS

Location CFA Well Name/No. LF3-11A

2) Was the well properly abandoned in accordance with Idaho State regulations:
Yes X No _ Not Documented _ Not Certain _

3) Are additional abandonment procedures necessary:
Yes _ No X Not Certain _

 GEOLOGIC LOG Well Name LF3-11A

Source: Generalized Lithology Log

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Interval (feet below surface)

Begin	End	Description
0	28	Sand
28	40	Black Basalt
40	41	Sand
41	67	Black Basalt
67	75	Sand
75	100	Gray Basalt
100	107	Vesicular Basalt
107	127	Black Basalt
127	134	Clay
134	148	Basalt
148	150	Clay and Silt
150	190	Hard Black Basalt
190	192	Clay and Silt
192	234	Gray to Black Basalt
234	240	Silty Sand
240	261	Black Basalt
261	265	Sand
265	300	Black Basalt
300	305	Red Cinders

COMPILED BY/ORGANIZATION: T.L. Morgan / GAI Date November 9, 1992

 GEOLOGIC LOG Well Name LF3-11A

Source: Generalized Lithology Log

****

Interval (feet below surface)

Begin	End	Description
305	354	Basalt
354	362	Brownish Green Sand and Clay
362	410	Black Basalt
410	420	Red Sand
420	497	Basalt (Fractures at 465 feet)

COMPILED BY/ORGANIZATION: T.L. Morgan / GAI Date November 9, 1992

WellName: LF3-11A

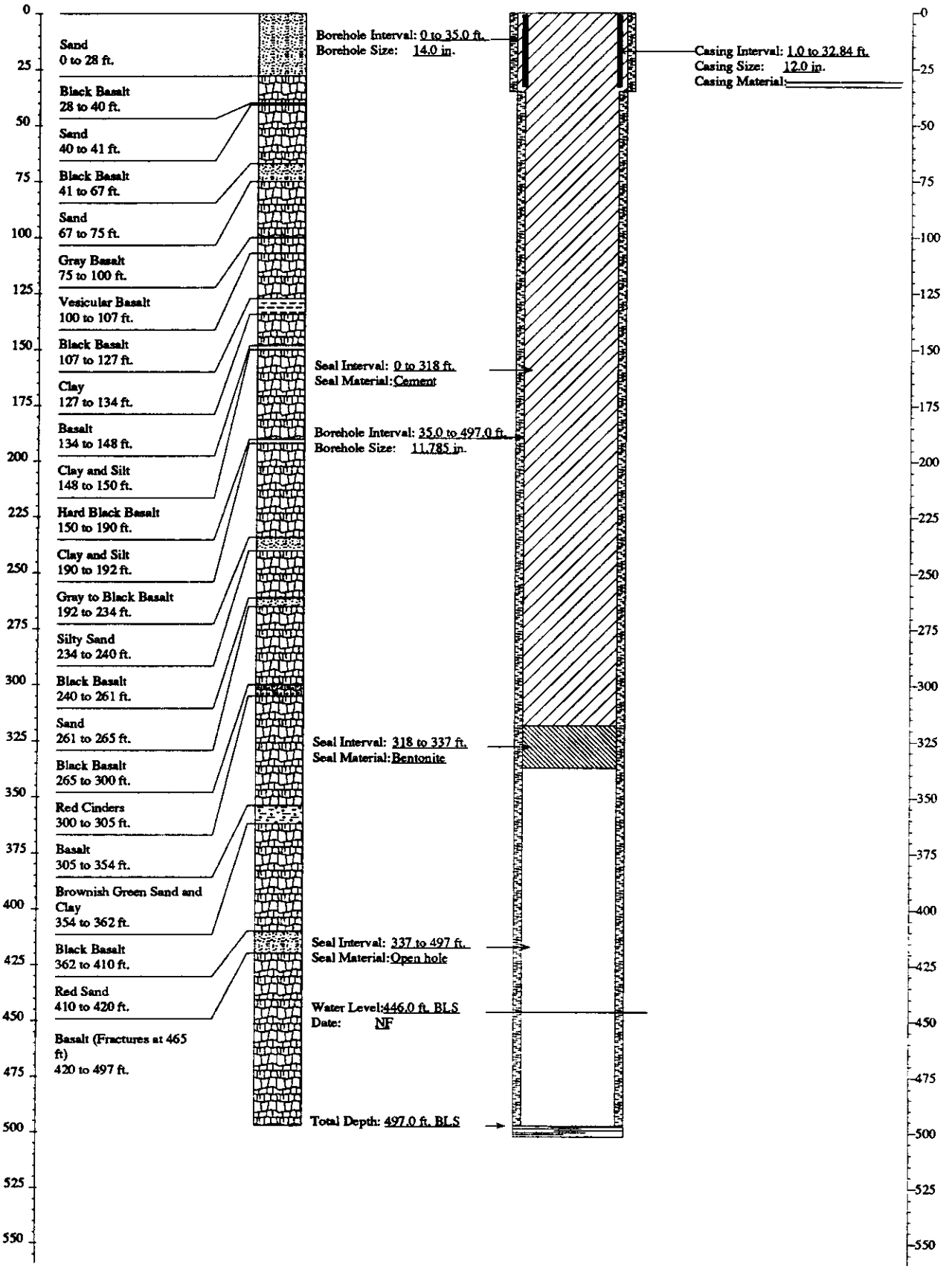
06/24/1993

Facility: CFA
Well Type: NA
Well Status: Abandoned
Year Drilled: 1990
Total Depth: 497.0

Easting: 292601.45
Northing: 686412.70
Longitude: 1125656.122
Latitude: 433251.090
Completion Depth: 397.0

Driller: P.C. Exploration
Geologist: Davis Burgess
Drilling Method: Mud rotary & air hammer
Drilling Fluid:
Land Surface: 4936.05

Water Level: 446.0
Water Level Date: NF
Water Level Access: NF



FITNESS-FOR-USE CHECKLIST POTABLE WATER/PRODUCTION WELL

LOCATION: EBR Well Name/No. EBR-1

A. WELL USE

1) Year well was drilled: 1949

2) Current use for well:
(X) Potable water production well
( ) Raw water production well

3) Well is: (X) Active ( ) Inactive

4) Program Plan: EG&G Drinking Water Monitoring Program

5) Responsible Organization/Contact Person: EG&G, Brad Andersen

6) Has a sanitary survey been performed on the drinking water system by the Idaho Department of Health and Welfare: (Yes X No _ Insufficient Data NA _) Date performed 12/5/90 Deficiencies reported relevant to scope of Fitness for Use Checklist/ Corrective actions taken: At the time of the sanitary survey, the well was located in a pit, however, the well is in compliance with Idaho State regulations since it falls under a grandfather clause (IDAPA 16:01, .08550, 02) which allows wells built prior to November 5, 1964 to be located in a pit. However the concrete vault (pit) was not in compliance with the State regulations. Modifications were made to the pit including sealing the concrete walls and adding ventilation in 1992 to bring it in compliance with State regulations. Additionally, a hole in the casing associated with a junction box was identified as needing attention.

The following evaluation pertains to well construction and does not address the design of the distribution system outside of well house or water quality issues.

B. WELL MUST COMPLY WITH IDAHO DEPARTMENT OF HEALTH AND WELFARE RULES AND REGULATIONS, TITLE 1, CHAPTER 8, "IDAHO REGULATIONS FOR PUBLIC DRINKING WATER SYSTEMS", SPECIFICALLY SUBSECTION 01.08550 "STANDARDS FOR PUBLIC DRINKING WATER SYSTEMS." WELL MUST ALSO COMPLY WITH IDAHO DEPARTMENT OF WATER RESOURCES "RULES AND REGULATIONS WELL CONSTRUCTION STANDARDS" (JANUARY 1989). THESE CRITERIA WILL BE EVALUATED IN SECTION C.

In addition, the Department of Health and Welfare has adopted "Recommended Standards for Water Works" (Albany, New York, 1992). The criteria from this report not included in "State Regulations for Well Construction" will be discussed in Section D.

1) Well shall not be located in a pit. Is this criterion met: (Yes _ No X Insufficient Data _ N/A _) Explanation See Section A.6. The well meets the grandfather clause.

2) Is a well house provided for this well: (Yes X No _ Insufficient Data _ N/A _) (If no, proceed to section 3)

   a) Well house shall be provided with a locking door. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

   b) Well house shall be protected from flooding and adequately drained. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

   c) Floor drains shall not be connected to sewers, storm drains, or any other source of contamination. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: Well pit is equipped with a sump pump.

   d) Sumps for well house floor drains shall not be within 30 feet of the well. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

   e) Well house shall not be used to store toxic or hazardous materials. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

3) Is the well constructed with a pitless adapter or pitless unit: (Yes _ No X Insufficient Data _ N/A _) (If no, proceed to Section 4)

   a) The unit shall be the type approved by the National Sanitation Division or Pitless Adaptor Division of the Water Systems Council. Is this criteria met: (Yes _ No _ Insufficient Data _ N/A _) Explanation: _

   b) The unit shall be designed to be watertight including the well cap and casing extension. Is this criterion met: (Yes _ No _ Insufficient Data _ N/A _) Explanation: _

   c) The unit shall be tested for leaks prior to being put into service. Is this criterion met: (Yes _ No _ Insufficient Data _ N/A _) Explanation: _

4) Well must not be located within 50 or 100 feet of any potential source of contamination and no closer to specific sources of contamination than set forth below.

   a) The well must not be within 50 feet of sewer lines. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

   b) The well must not be within 50 feet of canals, streams, ditches, lakes, ponds and tanks used to store non-potable substances. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

   c) The well must not be within 100 feet of a drainfield or a drainfield replacement area. Is this criterion met:
   (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

   d) Is the well within 50 feet of contaminated perched water bodies:
   (Yes _ No X Insufficient Data _ N/A _) Explanation: N.R.

5) Well casing shall extend a minimum of 12 inches above the ground surface and 6 inches above the well house floor. Are these criteria met:
(Yes _ No X Insufficient Data _ N/A _) Explanation: The well is located in a pit so the casing is not located above ground.

6) Well shall be vented with the open end screened and terminated downward at least 18 inches above the well house floor or ground surface. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

7) Well shall be equipped with the necessary valves and appurtenances to allow the well to be pumped to waste. Is this criterion met: (Yes X No Insufficient Data _ N/A _) Explanation: Approval notification was received from the state through DOE-ID on June 17, 1992 (Memo from M.B. Hinman to M.L. Adams dated June 12, 1992) for pumping EBR 1 to waste via an existing fire hydrant.

8) A flow meter and sample tap shall be installed on discharge line. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

9) A pressure gauge shall be provided at all installations. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

10) Well shall be cased and sealed in such a manner that surface water can not enter the well and a watertight seal shall be provided at the top of the casing. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _)
Explanation: N.R.

C. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "RULES AND REGULATIONS WELL CONSTRUCTION STANDARDS" (1989)

1) Surface Completion

State of Idaho Reg. 3.2.1. The top of the casing shall be completely covered with a 1/4-inch thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3.11. The well shall be equipped with an access port which has a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ Insufficient Data _)
b) Access to measure water levels: (Yes X No _ Insufficient Data _)

2) Casing

State of Idaho Reg. 3.3.4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

a) If the well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes X No _ Insufficient Data _ N/A _) Explanation: The alluvium/basalt interface is at approximately 14 ft. bls., and 18-inch casing is installed from 8 ft. als. through 750 ft. bls.

b) If the well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to top of bedrock: (Yes X No _ Borehole size inches 22 Casing size inches 18)

c) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho 3.2.1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-coupled joints which shall be watertight or be approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3.2.2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480 which is a combination of Idaho State regulations for casing less than 6 inches in diameter and "Recommended Standards for Water Works" (1992) for casings greater than 26 inches in diameter.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 I.D.	6.625	.280
8	8.628	.322
10 I.D.	0.750	.365
12	12.750	.375
14	14.000	.375
16	16.000	.375
18	18.000	.375
20	20.000	.375
22	22.000	.500
24	24.000	.500
26	26.000	.500
28	28.000	.500
30	30.000	.500
32	32.000	.500
34	34.000	.500

Casing Type	Casing Diameter (inches)	Casing Interval (feet bls)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/State Regs. on Casing Thickness
Steel [1]	18	8 - 750	N.F.	N/A in pit	N.F.	N/A
[1] Casing perforated from 600 to 750 feet bls.						

3) Seal

State of Idaho Reg. 3.3.1. and 3.3.2.1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters.

Annular Fill Material	Interval (feet bls)	Mixture/Volumes	Material Approved by State of Idaho Regs.
Gravel Pack	N.F. - 750	10 Yards	Yes

a) Does the surface seal extend at a minimum from ground surface to the top of bedrock: (Yes _ No _ Insufficient Data _ N/A X) Explanation: The well is located in an 8 ft. deep concrete vault (pit). There is no documentation of the well being constructed with a surface seal, therefore, it is assumed to be absent.

b) If the seal is documented, how was it emplaced (provide intervals if there was more than one grouting event):
(Yes _ No _ Insufficient Data _ N/A X) Explanation: It is assumed that no surface seal was installed, See C,3,a.

State of Idaho Reg. 3,3,1. The casing seal is to prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams, spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No X Insufficient Data _ N/A _) Explanation: None of the hydrologic features mentioned above are in the vicinity of this well.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X Insufficient Data _ N/A _) Explanation (Qualify data/specify perched intervals if applicable): The geophysical logs do not indicate the presence of any saturated intervals over the length of the well at the time they were taken (6/23/83).

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes _ No X Insufficient Data _ N/A _) Explanation: There is no documentation of the well being constructed with a casing seal and therefore it is assumed to be absent.

4) Gravel Pack. Does the well contain a gravel pack: (Yes X No _) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No X Insufficient Data N/A _) Explanation: There is no documentation of the gravel pack being emplaced with a gravel pack seal, therefore, it is assumed that one was not installed.

D. WELL MUST COMPLY WITH "RECOMMENDED STANDARDS FOR WATER WORKS" (1992), A REPORT OF THE COMMITTEE OF THE GREAT LAKES-UPPER MISSISSIPPI RIVER BOARD OF STATE SANITARY ENGINEERS.

1) Does the well contain a packer that is in contact with the groundwater supply interval: (Yes _ No X Insufficient Data _ N/A _). If yes, is the packer comprised of materials that are toxic, will impair taste or odor, or facilitate bacterial contamination of the well water: (Yes _ No _ Packer Type _ N/A X)

2) Screen

a) Does the well contain perforated casing or a screen: (Yes X No Insufficient Data _ N/A _) If yes, the perforated screen or casing must be installed so that the pumping water level remains above it under operating conditions. The following determination was made from the available production water level data which will vary with changes in the static water levels (water table elevation); therefore, the following determination may not be valid under all conditions. Is the criterion met: (Yes _ No _ Insufficient Data _ N/A X) Explanation: Insufficient data exist to determine if the production water level falls below the top of perforated casing. However, it likely does, with fluctuations in the water table since the static water level is approximately 596 ft. bls. and the initial casing perforations occur at 600 ft. bls.

b) Is the perforated casing or screen constructed of material resistant to damage by chemical action from the groundwater or cleaning operations: Material Type Steel Explanation: Steel is an acceptable well construction material for casing or screen in a non-acidic environment such as the Snake River Plain aquifer, as is demonstrated in EG&G report EGG-ER-8496.

3) If the casing is constructed of nonferrous material, it must be resistant to the corrosiveness of the water. Is this criterion met: (Yes _ No _ Insufficient Data _ N/A X)

4) Was the well adequately developed to remove native silts and clays, drilling mud or the finer fraction of the gravel pack: (Yes X No _ Insufficient Data N/A _) Explanation: There is no documentation of well development in the available information for this well. However, the well has been in service since 1974 and is sufficiently developed at this time.

E. **THE PRIMARY SOURCE FOR THE WELL EVALUATION IS THE IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY. OTHER SOURCES:** EG&G letter, BDA-60-92 From B. D. Andersen to M. B. Hinman, "Potential Contamination of Drinking Water Wells and Water Storage Tanks" dated 8/26/92. EG&G letter, REW-45-92 From R. E. Williams to J. R. Harper "Listing of Potable Water Wells Not In Compliance With State Standards." dated 4/22/92. Brad Andersen, Teresa Brock, and Dennis Walker, Personal Communication, 2-3-93. Idaho Department of Health and Welfare, Division of Environmental Quality, Drinking Water Supply Report EBR 1, 12/5/90. EG&G Internal Sanitary Survey Checklist, 11/5/91

N.F. Not Found
N/A Not Applicable
N.R. Not Required

F. WELL FITNESS DETERMINATION

Intended use: PRODUCTION/POTABLE WELL

( ) Well is acceptable for intended use.
(X) Well is acceptable for intended use if a variance is granted.
( ) Maintenance required to continue intended use.
( ) Remediation required to continue intended use.
( ) Decommission, well is unneeded or cannot be remediated.

DEFICIENCIES: The well was constructed without a surface seal or casing seal which is not in compliance with Idaho State regulations. However, the threat of water from perched water bodies or surface waters entering the annular space is remote. Therefore, a variance should be requested for exemption to the regulations. The following minor items were also found; the casing thickness and type of casing joints are not documented, and the production water level may enter the perforated section of casing.

REMEDIATION: N.R.

GEOLOGIC LOG

Well Name EBR-1

Source: Generalized Lithologic Log

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Interval (feet below surface)

Begin	End	Description
0	14	Silt
14	130	Basalt
130	150	Clay
150	170	Basalt and Clay
170	180	Cinders
180	224	Basalt
224	226	Clay
226	243	Basalt
243	250	Cinders
250	307	Basalt
307	324	Gravel and Clay
324	338	Clay and Basalt
338	368	Basalt
368	385	Basalt and Clay
385	530	Basalt
530	534	Clay
534	570	Basalt
570	575	Clay and Basalt
575	590	Basalt

COMPILED BY/ORGANIZATION: T. Norton / GAI Date 2/10/93

GEOLOGIC LOG

Well Name EBR-1

Source: Generalized Lithologic Log

****

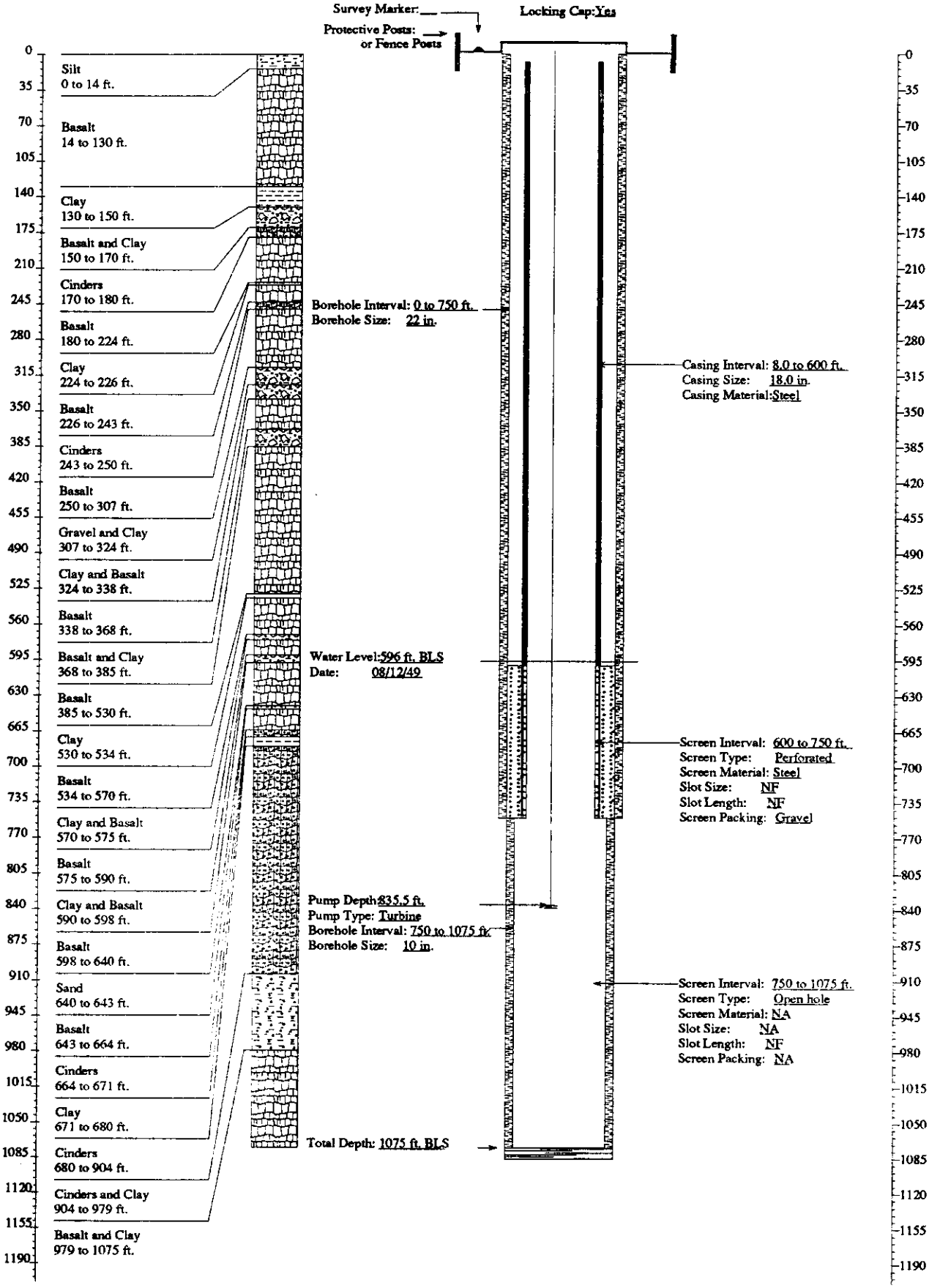
Interval (feet below surface)

Begin	End	Description
590	598	Clay and Basalt
598	640	Basalt
640	643	Sand
643	664	Basalt
664	671	Cinders
671	680	Clay
680	904	Cinders
904	979	Cinders and Clay
979	1075	Basalt and Clay

COMPILED BY/ORGANIZATION: T. Norton / GAI Date 2/10/93

WellName: EBR-1 **Corrections:** WELL IS LOCATED IN AN 8-FT. DEEP CONCRETE VAULT 07/30/1993

Facility:	EBR	Easting:	277055.00	Driller:	Schoonover	Water Level:	596
Well Type:	Potable Water Well	Northing:	674393.00	Geologist:	NF	Water Level Date:	08/12/49
Well Status:	Active	Longitude:	1130025.55	Drilling Method:	Cable tooled	Water Level Access:	NF
Year Drilled:	1949	Latitude:	433050.89	Drilling Fluid:	NF		
Total Depth:	1075	Completion Depth:	1075	Land Surface:	5024.32		



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: ICPP Well Name/No. 81-01

A. WELL/BORING USE

1) Year drilled: N.F.

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) USGS Observation
( ) RCRA Monitoring
( ) No Documented Use
( ) CERCLA Characterization
(X) Other :WINCO plans to use after their program plan is updated.

3) Constituents monitored currently: Radioactivity in the alluvium

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: WINCO / Ken Taylor

B. WELL/BORING INFORMATION

1) Construction Category
( ) Surface Percolation Well
( ) Gas Port
( ) Neutron Access Port
(X) Scientific Instrumentation
(X) Radioactivity Monitoring Port
( ) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
(X) None
( ) Lysimeter
( ) Vapor Sampler
( ) Psychrometer
( ) Gypsum Block
( ) Salinity Probe
( ) Heat Dissipation Sensor
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 20 ft. Top of basalt = N.F. ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
( ) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes _ No X) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes _ No X)
4) Does the well contain a survey marker: (Yes _ No X)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No X N/A _)
   Explanation The monitoring port is located within the ICPP tank farm, which is a contaminated soil area. Also, the installation of the surface upgrade might puncture the tank farm liner which is located about 1-foot below

ground.

6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _) Explanation The monitoring port is located in a secured area that is fenced and locked.

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes X No _)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes _ No X N/A Borehole size 2-inch Casing size 2-inch)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of

bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _ Drilling Method Percussion hammer)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Stainless steel (1)	2 I.D or O.D.?	0 - 20	N.F.	41	N.F.	N.F.

(1) The pipe has no perforations and is capped at the top and bottom.

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedr

whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Seal Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
None	N/A	N/A	N/A

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3,3,1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No X N/A _) Explanation The monitoring port is completed in the alluvium. The base of the alluvium is commonly the first perched interval.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X N/A _) Explanation (Qualify data/specify perched intervals if applicable) See Section c above.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes _ No _ N/A X) Explanation Since the monitoring port is completed in permeable alluvium, it should not promote vertical fluid migration.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Personal communication, Ken Taylor, WINCO (Oct. 1992 and Feb. 1993)

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: EG&G Observation/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- ( ) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- (X) Boring is not sealed, but remediation is unnecessary.
- (X) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The monitoring port, which was pounded into the alluvium with a percussion hammer, is constructed of 2-inch unperforated stainless steel pipe capped at the bottom and top. The port is used for checking radioactivity in the alluvium at the ICPP tank farm and is not a well as defined by the State of Idaho.

Deficiencies: None. The surface completion of the monitoring port was not upgraded because it is located in a contaminated soil area. Also, installation of the upgrade might puncture the tank farm liner which is located about 1-foot below ground.

Remediation: None

GEOLOGIC LOG

Well Name 81-01

Source: Construction Data

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Interval (feet below surface)

Begin	End	Description
0	20	Alluvium

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date August 18, 1992

WellName: 81-01

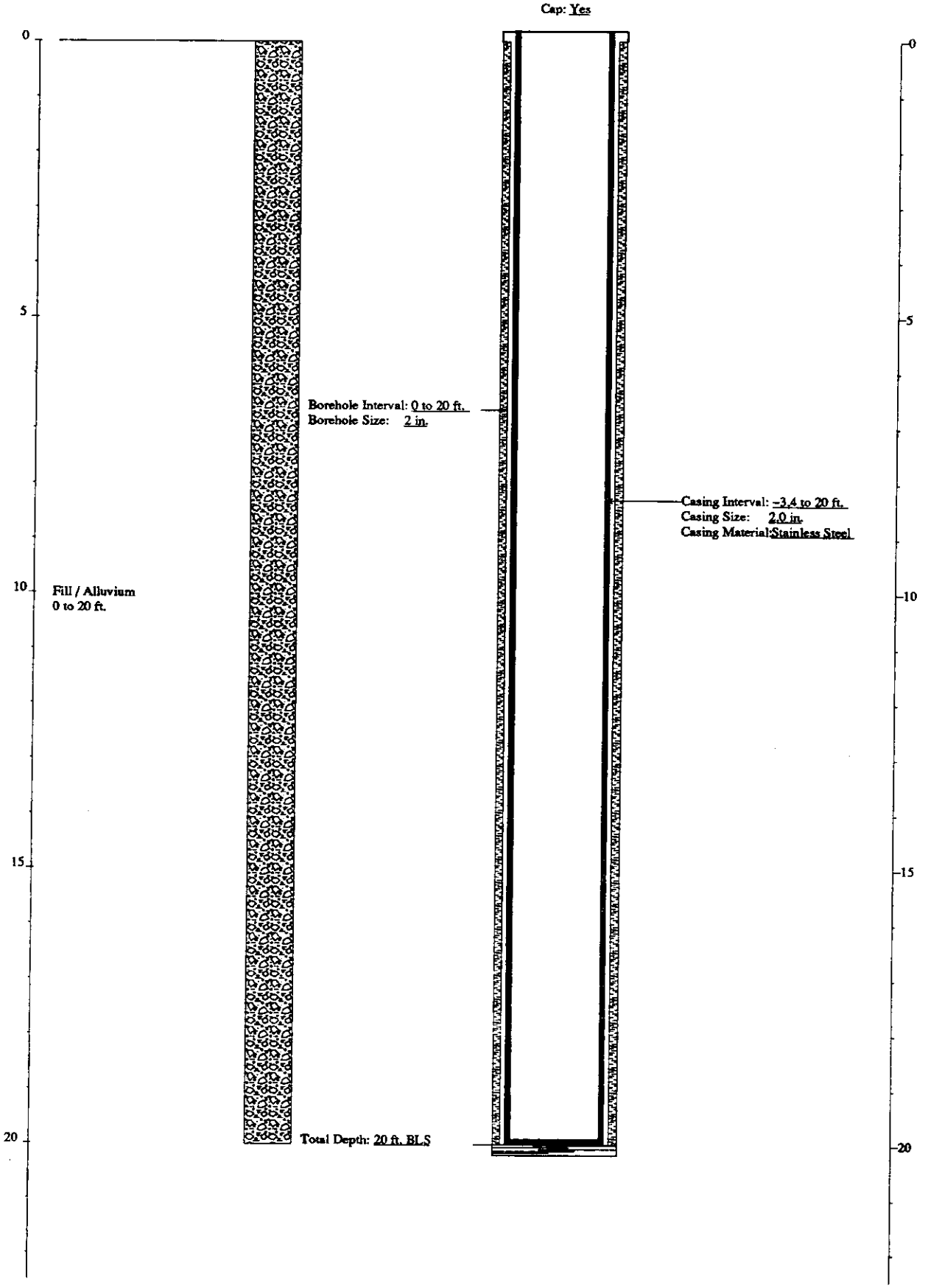
06/10/1993

Facility: CPP
Well Type: Scientific Instrumentation
Well Status: Active
Year Drilled: NF
Total Depth: 20

Easting: 297120.1
Northing: 695422.3
Longitude: 1125555.898
Latitude: 433420.484
Completion Depth: NA

Driller: NF
Geologist: NF
Drilling Method: Percussion Hammer
Drilling Fluid: NF
Land Surface: 4916.3

Water Level: NA
Water Level Date: NA
Water Level Access: NA



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: ICPP Well Name/No. 81-02

A. WELL/BORING USE

1) Year drilled: N.F.

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) RCRA Monitoring
( ) CERCLA Characterization
( ) USGS Observation
( ) No Documented Use
(X) Other :WINCO plans to use after their program plan is updated.

3) Constituents monitored currently: Radioactivity in the alluvium

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: WINCO / Ken Taylor

B. WELL/BORING INFORMATION

1) Construction Category
( ) Surface Percolation Well
( ) Gas Port
( ) Neutron Access Port
(X) Scientific Instrumentation
  (X) Radioactivity Monitoring
  ( ) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
(X) None
( ) Vapor Sampler
( ) Gypsum Block
( ) Heat Dissipation Sensor
( ) Lysimeter
( ) Psychrometer
( ) Salinity Probe
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 30 ft. Top of basalt = N.F. ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
( ) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes _ No X) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes _ No X)
4) Does the well contain a survey marker: (Yes _ No X)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No X N/A _)
   Explanation The monitoring port is located within the ICPP tank farm, which is a contaminated soil area. Also, the installation of the surface upgrade might puncture the tank farm liner which is located about 1-foot below ground.

6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _) Explanation The monitoring port is located in a secured area that is fenced and locked.

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes X No _)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes _ No X N/A Borehole size 2-inch Casing size 2-inch)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _ Drilling Method Percussion hammer)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3.2.1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3.2.2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Stainless steel [1]	2 I.D or O.D.?	0 - 30	N.F.	20	N.F.	N.F.

[1] The pipe has no perforations and is capped at the top and bottom.

3) Seal

State of Idaho Reg. 3.3.1 and 3.3.2.1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Seal Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
None	N/A	N/A	N/A

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3,3,1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No X N/A _) Explanation The monitoring port is completed in the alluvium. The base of the alluvium is commonly the first perched interval.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X N/A _) Explanation (Qualify data/specify perched intervals if applicable) See Section c above.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes _ No _ N/A X) Explanation Since the monitoring port is completed in permeable alluvium, it should not promote vertical fluid migration.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: ICPP PAGE 6 of 7 Well Name/No. 81-02

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Personal communication, Ken Taylor, WINCO (Oct. 1992 and Feb. 1993)

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: EG&G Observation/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- ( ) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- (X) Boring is not sealed, but remediation is unnecessary.
- (X) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The monitoring port, which was pounded into the alluvium with a percussion hammer, is constructed of 2-inch unperforated stainless steel pipe capped at the bottom and top. The port is used for checking radioactivity in the alluvium at the ICPP tank farm and is not a well as defined by the State of Idaho.

Deficiencies: None. The surface completion of the monitoring port was not upgraded because it is located in a contaminated soil area. Also, installation of the upgrade might puncture the tank farm liner which is located about 1-foot below ground.

Remediation: None

GEOLOGIC LOG

Well Name 81-02

Source: Construction Data

****

Interval (feet below surface)

Begin	End	Description
0	30	Alluvium

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date August 18, 1992

WellName: 81–02

06/10/1993

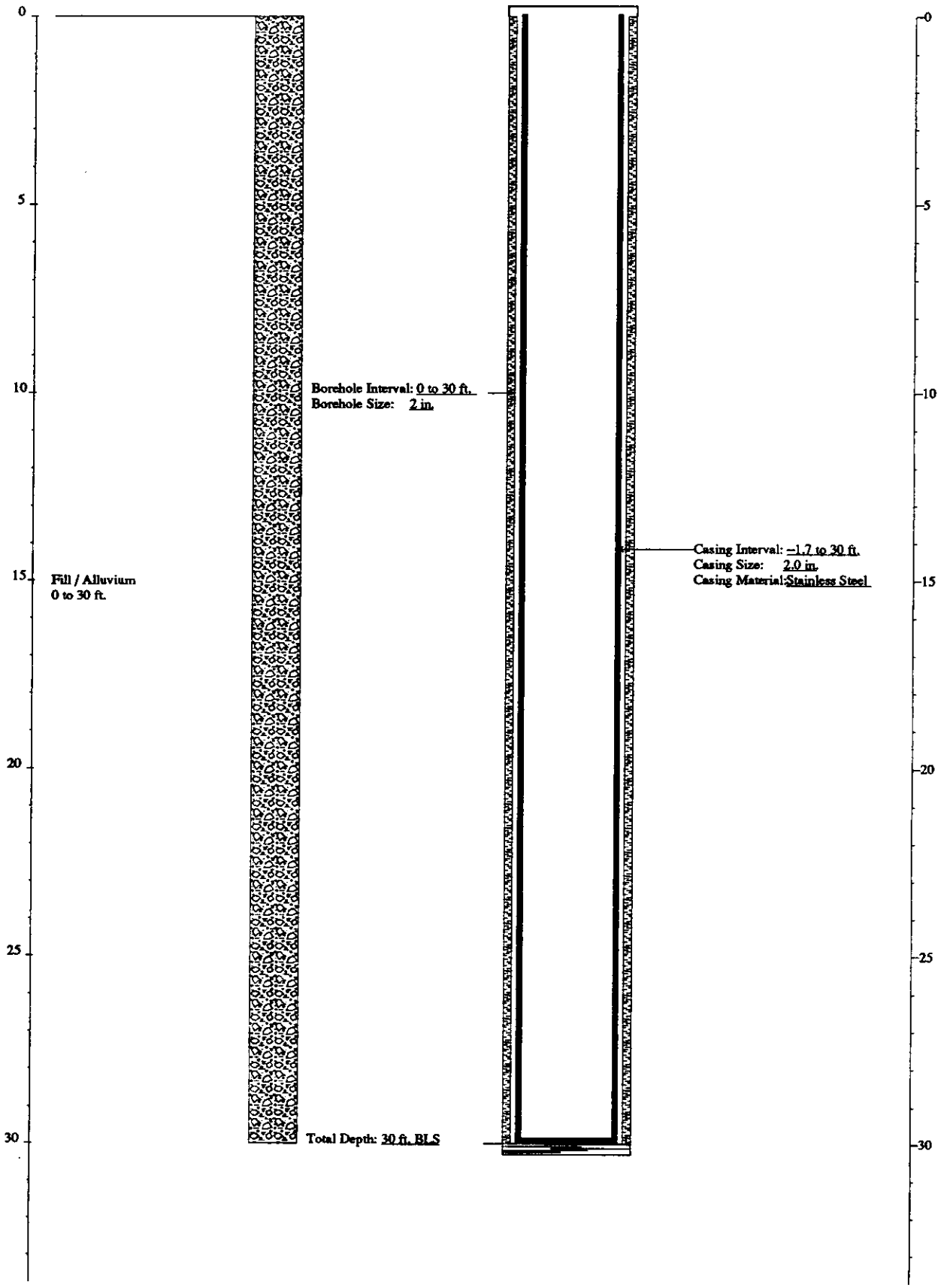
Facility: CPP
Well Type: Scientific Instrumentation
Well Status: Active
Year Drilled: NF
Total Depth: 30

Easting: 296756.0
Northing: 695656.0
Longitude: 1125600.873
Latitude: 433422.758
Completion Depth: NF

Driller: NF
Geologist: NF
Drilling Method: Percussion Hammer
Drilling Fluid: NF
Land Surface: 4917.8

Water Level: NA
Water Level Date: NA
Water Level Access: NA

Cap: Yes



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS

LOCATION: ICPP Well Name/No. 81-04

A. WELL USE

1) Year well was drilled: N.F.

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) RCRA Monitoring
( ) CERCLA Characterization
( ) USGS Observation
( ) No Documented Use
(X) Other :WINCO plans to use after their program plan is updated.

3) Constituents monitored currently: Radioactivity in the alluvium

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: WINCO / Ken Taylor

B. WELL/BOREHOLE TYPE

1) Well/boring type
( ) Alluvial Water Well
( ) Gas Port
( ) Neutron Access
(X) Scientific Instrumentation
  (X) Radioactivity Monitoring
  ( ) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
(X) None
( ) Vapor Sampler
( ) Gypsum Block
( ) Heat Dissipation Sensor
( ) Lysimeter
( ) Psychrometer
( ) Salinity Probe
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 20 ft. Top of basalt = N.F. ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
( ) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes _ No X) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes _ No X)
4) Does the well contain a survey marker: (Yes _ No X)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No X N/A _)
   Explanation The monitoring port is located within the ICPP tank farm, which is a contaminated soil area. Also, the installation of the surface upgrade might puncture the tank farm liner which is located about 1-foot below ground.

6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _) Explanation The monitoring port is located in a secured area that is fenced and locked.

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes X No _)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes _ No X N/A Borehole size 2-inch Casing size 2-inch)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _ Drilling Method Percussion hammer)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Stainless steel [1]	2 I.D or O.D.?	0 - 20	N.F.	8	N.F.	N.F.

[1] The pipe has no perforations and is capped at the top and bottom.

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Seal Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
None	N/A	N/A	N/A

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3.3.1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No X N/A _) Explanation The monitoring port is completed in the alluvium. The base of the alluvium is commonly the first perched interval.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X N/A _) Explanation (Qualify data/specify perched intervals if applicable) See Section c above.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes _ No _ N/A X) Explanation Since the monitoring port is completed in permeable alluvium, it should not promote vertical fluid migration.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Personal communication, Ken Taylor, WINCO (Oct. 1992 and Feb. 1993)

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: EG&G Observation/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- ( ) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- (X) Boring is not sealed, but remediation is unnecessary.
- (X) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The monitoring port, which was pounded into the alluvium with a percussion hammer, is constructed of 2-inch unperforated stainless steel pipe capped at the bottom and top. The port is used for checking radioactivity in the alluvium at the ICPP tank farm and is not a well as defined by the State of Idaho.

Deficiencies: None. The surface completion of the monitoring port was not upgraded because it is located in a contaminated soil area. Also, installation of the upgrade might puncture the tank farm liner which is located about 1-foot below ground.

Remediation: None

GEOLOGIC LOG

Well Name 81-04

Source: Construction Data

****

Interval (feet below surface)

Begin	End	Description
0	20	Alluvium

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date August 18, 1992

WellName: 81-04

06/10/1993

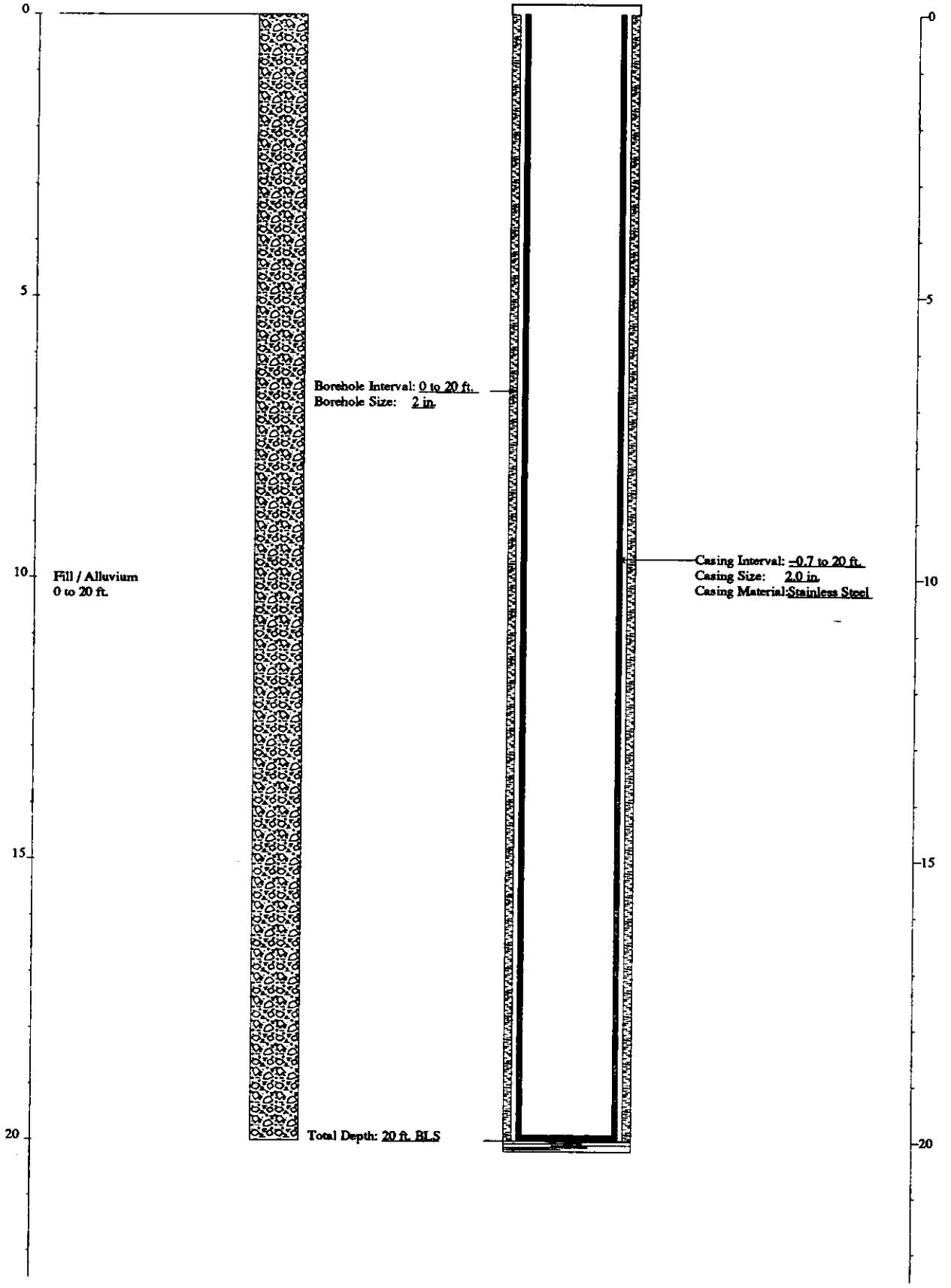
Facility: CPP
Well Type: Scientific Instrumentation
Well Status: Active
Year Drilled: NF
Total Depth: 20

Easting: 296829.8
Northing: 695525.6
Longitude: 1125559.854
Latitude: 433421.477
Completion Depth: NA

Driller: NF
Geologist: NF
Drilling Method: Percussion Hammer
Drilling Fluid: NF
Land Surface: 4917.2

Water Level: NA
Water Level Date: NA
Water Level Access: NA

Cap: Yes



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS/BORINGS

LOCATION: ICPP Well Name/No. 81-05

A. WELL/BORING USE

1) Year drilled: N.F.

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) RCRA Monitoring
( ) CERCLA Characterization
( ) USGS Observation
( ) No Documented Use
(X) Other :WINCO plans to use after their program plan is updated.

3) Constituents monitored currently: Radioactivity in the alluvium

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: WINCO / Ken Taylor

B. WELL/BORING INFORMATION

1) Construction Category
( ) Surface Percolation Well
( ) Gas Port
( ) Neutron Access Port
(X) Scientific Instrumentation
(X) Radioactivity Monitoring
( ) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
(X) None
( ) Vapor Sampler
( ) Gypsum Block
( ) Heat Dissipation Sensor
( ) Lysimeter
( ) Psychrometer
( ) Salinity Probe
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 14 ft. Top of basalt = N.F. ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
(X) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes _ No X) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes _ No X)
4) Does the well contain a survey marker: (Yes _ No X)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No X N/A _)
   Explanation The monitoring port is located within the ICPP tank farm, which is a contaminated soil area. Also, the installation of the surface upgrade might puncture the tank farm liner which is located about 1-foot below ground.

6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _) Explanation The monitoring port is located in a secured area that is fenced and locked.

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes _ No X)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes _ No X N/A Borehole size 2-inch Casing size 2-inch)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _ Drilling Method Percussion hammer)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Stainless steel (1)	2 I.D or O.D.?	0 - 14	N.F.	14	N.F.	N.F.

(1) The pipe has no perforations and is capped at the top and bottom.

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Seal Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
None	N/A	N/A	N/A

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3.3.1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No X N/A _) Explanation The monitoring port is completed in the alluvium. The base of the alluvium is commonly the first perched interval.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X N/A _) Explanation (Qualify data/specify perched intervals if applicable) See Section c above.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes _ No _ N/A X) Explanation Since the monitoring port is completed in permeable alluvium, it should not promote vertical fluid migration.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Personal communication, Ken Taylor, WINCO (Oct. 1992 and Feb. 1993)

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: EG&G Observation/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- ( ) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- (X) Boring is not sealed, but remediation is unnecessary.
- (X) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The monitoring port, which was pounded into the alluvium with a percussion hammer, is constructed of 2-inch unperforated stainless steel pipe capped at the bottom and top. The port is used for checking radioactivity in the alluvium at the ICPP tank farm and is not a well as defined by the State of Idaho.

Deficiencies: None. The surface completion of the monitoring port was not upgraded because it is located in a contaminated soil area. Also, installation of the upgrade might puncture the tank farm liner which is located about 1-foot below ground.

Remediation: None

GEOLOGIC LOG

Well Name 81-05

Source: Construction Data

****

Interval (feet below surface)

Begin	End	Description
0	14	Alluvium

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date August 18, 1992

WellName: 81-05

06/10/1993

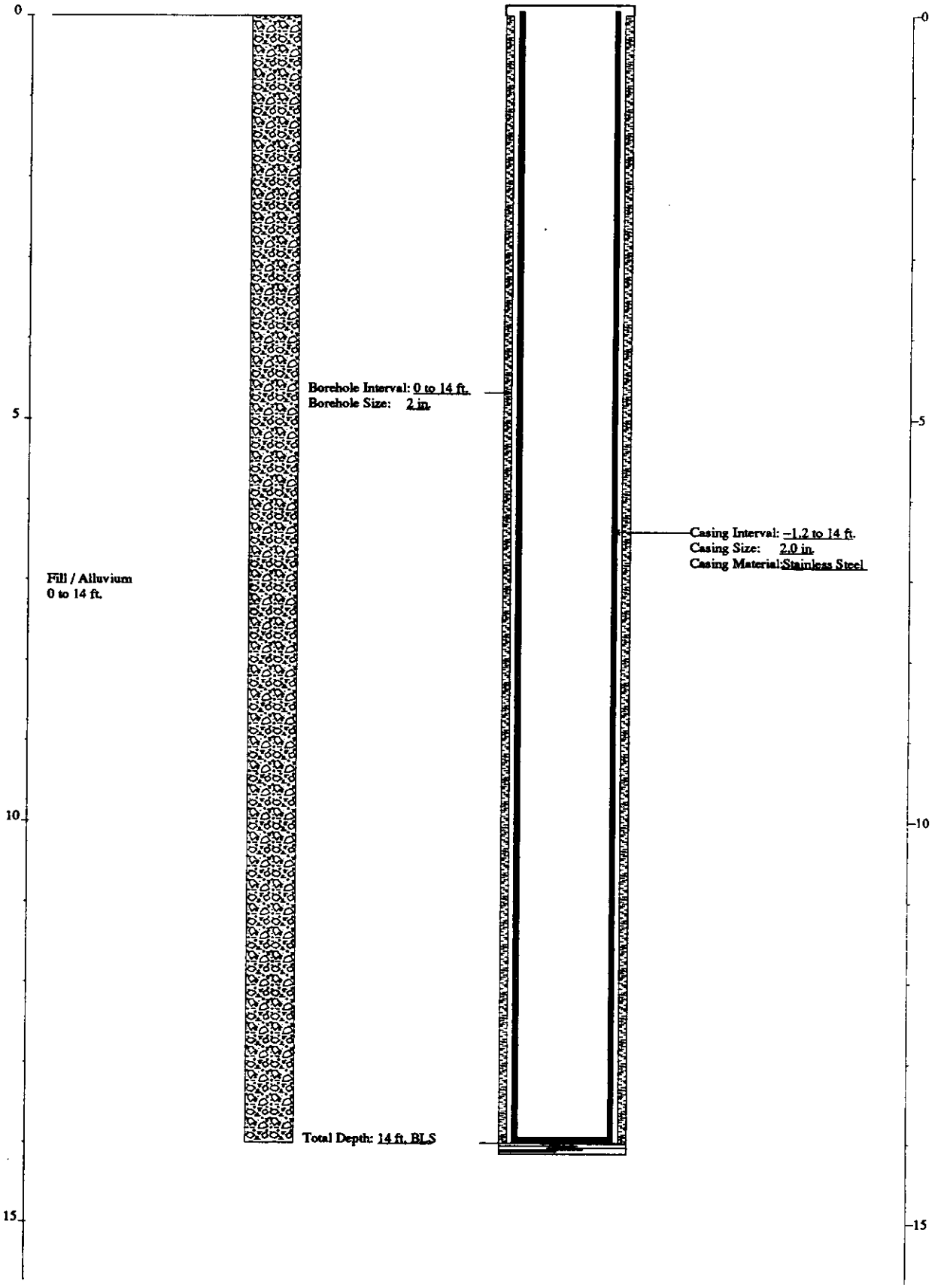
Facility: CPP
Well Type: Scientific Instrumentation
Well Status: Active
Year Drilled: NF
Total Depth: 14

Easting: 296860.7
Northing: 695594.6
Longitude: 1125559.443
Latitude: 433422.162
Completion Depth: NA

Driller: NF
Geologist: NF
Drilling Method: Percussion Hammer
Drilling Fluid: NF
Land Surface: 4918.3

Water Level: NA
Water Level Date: NA
Water Level Access: NA

Cap: Yes



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: ICPP Well Name/No. 81-06

A. WELL/BORING USE

1) Year drilled: N.F.

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) RCRA Monitoring
( ) CERCLA Characterization
( ) USGS Observation
( ) No Documented Use
(X) Other :WINCO plans to use after their program plan is updated.

3) Constituents monitored currently: Radioactivity in the alluvium

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: WINCO / Ken Taylor

B. WELL/BORING INFORMATION

1) Construction Category
( ) Surface Percolation Well
( ) Gas Port
( ) Neutron Access Port
(X) Scientific Instrumentation
  (X) Radioactivity Monitoring
  ( ) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
(X) None
( ) Vapor Sampler
( ) Gypsum Block
( ) Heat Dissipation Sensor
( ) Lysimeter
( ) Psychrometer
( ) Salinity Probe
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 30 ft. Top of basalt = N.F. ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
( ) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes _ No X) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes _ No X)
4) Does the well contain a survey marker: (Yes _ No X)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No X N/A _)
   Explanation The monitoring port is located within the ICPP tank farm, which is a contaminated soil area. Also, the installation of the surface upgrade might puncture the tank farm liner which is located about 1-foot below ground.

6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _) Explanation The monitoring port is located in a secured area that is fenced and locked.

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes X No _)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes _ No X N/A Borehole size 2-inch Casing size 2-inch)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _ Drilling Method Percussion hammer)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3.2.1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3.2.2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Stainless steel (1)	2 I.D or O.D.?	0 - 30	N.F.	18	N.F.	N.F.

(1) The pipe has no perforations and is capped at the top and bottom.

3) Seal

State of Idaho Reg. 3.3.1 and 3.3.2.1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Seal Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
None	N/A	N/A	N/A

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3.3.1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No X N/A _) Explanation The monitoring port is completed in the alluvium. The base of the alluvium is commonly the first perched interval.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X N/A _) Explanation (Qualify data/specify perched intervals if applicable) See Section c above.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes _ No _ N/A X) Explanation Since the monitoring port is completed in permeable alluvium, it should not promote vertical fluid migration.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: ICPP | PAGE 6 of 7 | Well Name/No. 81-06

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Personal communication, Ken Taylor, WINCO (Oct. 1992 and Feb. 1993)

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: EG&G Observation/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- ( ) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- (X) Boring is not sealed, but remediation is unnecessary.
- (X) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The monitoring port, which was pounded into the alluvium with a percussion hammer, is constructed of 2-inch unperforated stainless steel pipe capped at the bottom and top. The port is used for checking radioactivity in the alluvium at the ICPP tank farm and is not a well as defined by the State of Idaho.

Deficiencies: None. The surface completion of the monitoring port was not upgraded because it is located in a contaminated soil area. Also, installation of the upgrade might puncture the tank farm liner which is located about 1-foot below ground.

Remediation: None

GEOLOGIC LOG

Well Name 81-06

Source: Construction Data

****

Interval (feet below surface)

Begin	End	Description
0	30	Alluvium

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date August 18, 1992

WellName: 81-06

06/10/1993

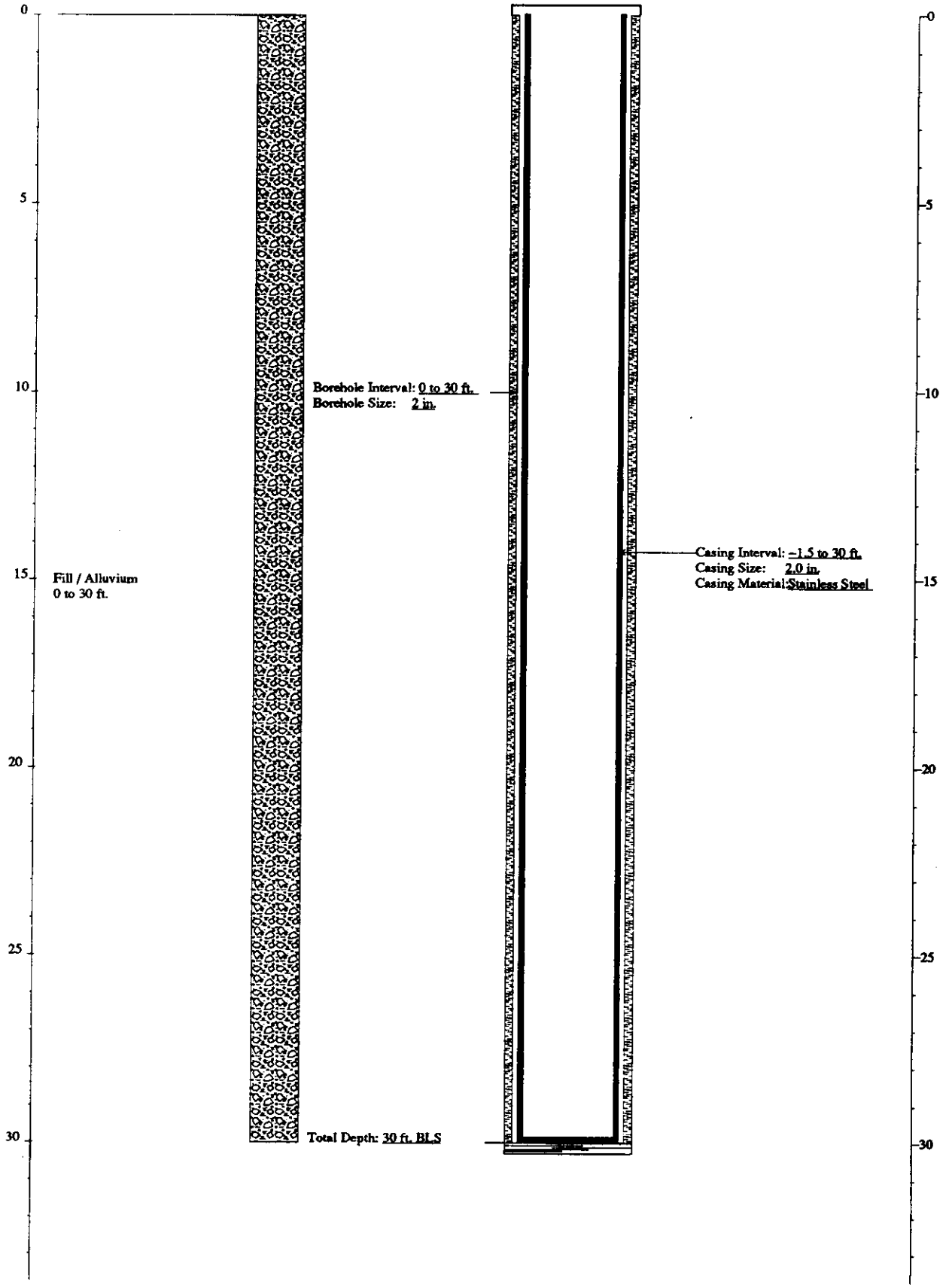
Facility: CPP
Well Type: Scientific Instrumentation
Well Status: Active
Year Drilled: NF
Total Depth: 30

Easting: 296836.0
Northing: 695644.5
Longitude: 1125559.784
Latitude: 433422.652
Completion Depth: NA

Driller: NF
Geologist: NF
Drilling Method: Percussion Hammer
Drilling Fluid: NF
Land Surface: 4918.4

Water Level: NA
Water Level Date: NA
Water Level Access: NA

Cap: Yes



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS/BORINGS

LOCATION: ICPP Well Name/No. 81-07

A. WELL/BORING USE

1) Year drilled: N.F.

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) RCRA Monitoring
( ) CERCLA Characterization
( ) USGS Observation
( ) No Documented Use
(X) Other :WINCO plans to use after their program plan is updated.

3) Constituents monitored currently: Radioactivity in the alluvium

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: WINCO / Ken Taylor

B. WELL/BORING INFORMATION

1) Construction Category
( ) Surface Percolation Well
( ) Gas Port
( ) Neutron Access Port
(X) Scientific Instrumentation
(X) Radioactivity Monitoring
( ) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
(X) None
( ) Vapor Sampler
( ) Gypsum Block
( ) Heat Dissipation Sensor
( ) Lysimeter
( ) Psychrometer
( ) Salinity Probe
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 20 ft. Top of basalt = N.F. ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
( ) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes _ No X) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes _ No X)
4) Does the well contain a survey marker: (Yes _ No X)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No X N/A _)
   Explanation The monitoring port is located within the ICPP tank farm, which is a contaminated soil area. Also, the installation of the surface upgrade might puncture the tank farm liner which is located about 1-foot below ground.

6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _) Explanation The monitoring port is located in a secured area that is fenced and locked.

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes X No _)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes _ No X N/A Borehole size 2-inch Casing size 2-inch)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _ Drilling Method Percussion hammer)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3.2.1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3.2.2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (Inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Stainless steel [1]	2 I.D or O.D.?	0 - 20	N.F.	6	N.F.	N.F.

[1] The pipe has no perforations and is capped at the top and bottom.

3) Seal

State of Idaho Reg. 3.3.1 and 3.3.2.1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Seal Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
None	N/A	N/A	N/A

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3.3.1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No X N/A _) Explanation The monitoring port is completed in the alluvium. The base of the alluvium is commonly the first perched interval.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X N/A _) Explanation (Qualify data/specify perched intervals if applicable) See Section c above.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes _ No _ N/A X) Explanation Since the monitoring port is completed in permeable alluvium, it should not promote vertical fluid migration.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS/BORINGS

LOCATION: ICPP PAGE 6 of 7 Well Name/No. 81-07

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Personal communication, Ken Taylor, WINCO (Oct. 1992 and Feb. 1993)

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: EG&G Observation/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- ( ) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- (X) Boring is not sealed, but remediation is unnecessary.
- (X) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The monitoring port, which was pounded into the alluvium with a percussion hammer, is constructed of 2-inch unperforated stainless steel pipe capped at the bottom and top. The port is used for checking radioactivity in the alluvium at the ICPP tank farm and is not a well as defined by the State of Idaho.

Deficiencies: None. The surface completion of the monitoring port was not upgraded because it is located in a contaminated soil area. Also, installation of the upgrade might puncture the tank farm liner which is located about 1-foot below ground.

Remediation: None

GEOLOGIC LOG

Well Name 81-07

Source: Construction Data

****

Interval (feet below surface)

Begin	End	Description
0	20	Alluvium

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date August 18, 1992

WellName: 81-07

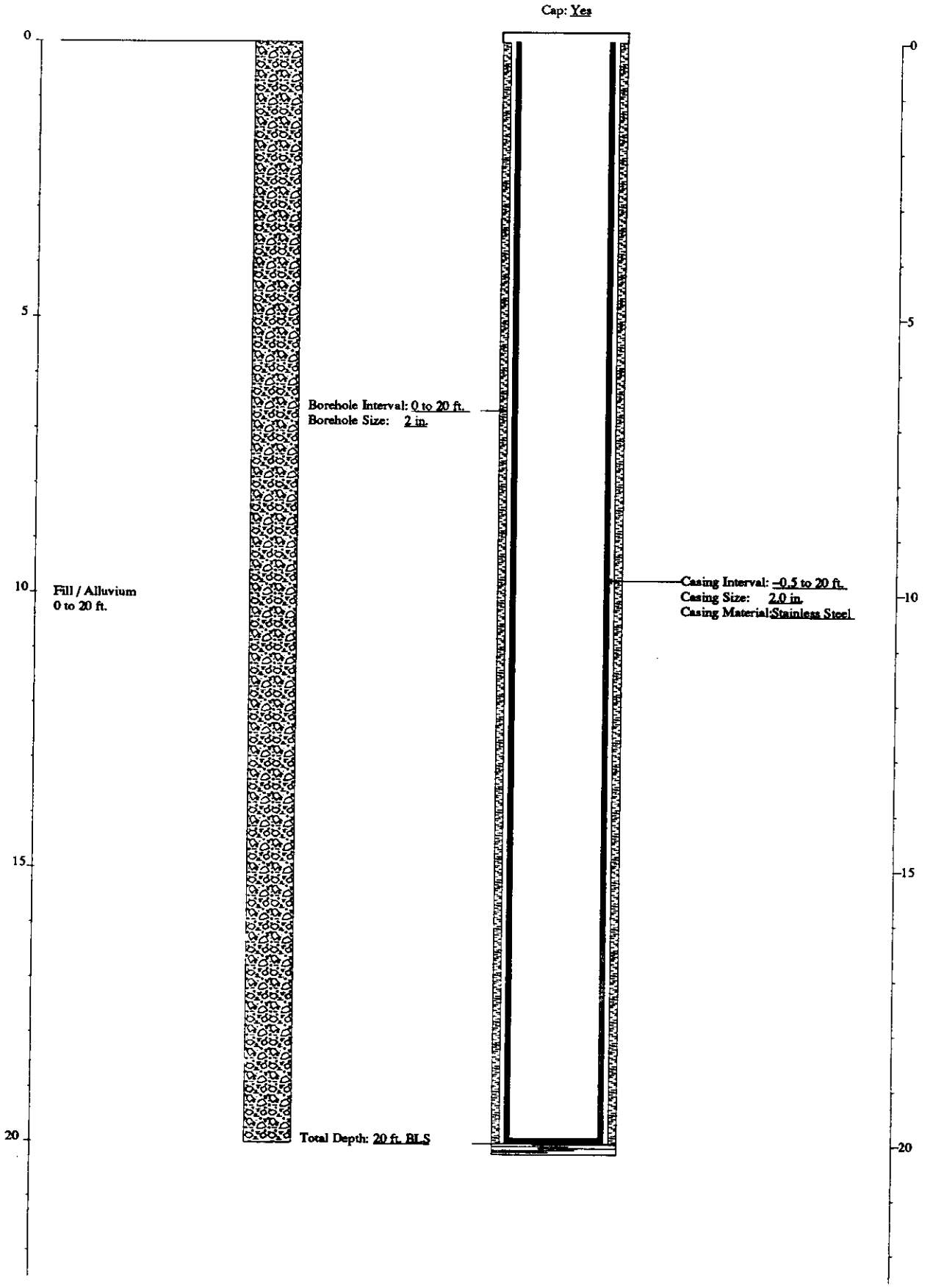
06/10/1993

Facility: CPP
Well Type: Scientific Instrumentation
Well Status: Active
Year Drilled: NF
Total Depth: 20

Easting: 296877.6
Northing: 695617.3
Longitude: 1125559.216
Latitude: 433422.387
Completion Depth: NA

Driller: NF
Geologist: NF
Drilling Method: Percussion Hammer
Drilling Fluid: NF
Land Surface: 4917.7

Water Level: NA
Water Level Date: NA
Water Level Access: NA



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: ICPP Well Name/No. 81-08

A. WELL/BORING USE

1) Year drilled: N.F.

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) RCRA Monitoring
( ) CERCLA Characterization
( ) USGS Observation
( ) No Documented Use
(X) Other :WINCO plans to use after their program plan is updated.

3) Constituents monitored currently: Radioactivity in the alluvium

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: WINCO / Ken Taylor

B. WELL/BORING INFORMATION

1) Construction Category
( ) Surface Percolation Well
( ) Gas Port
( ) Neutron Access Port
(X) Scientific Instrumentation
  (X) Radioactivity Monitoring
  ( ) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
(X) None
( ) Vapor Sampler
( ) Gypsum Block
( ) Heat Dissipation Sensor
( ) Lysimeter
( ) Psychrometer
( ) Salinity Probe
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 20 ft. Top of basalt = N.F. ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
( ) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes _ No X) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes _ No X)
4) Does the well contain a survey marker: (Yes _ No X)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No X N/A _)
   Explanation The monitoring port is located within the ICPP tank farm, which is a contaminated soil area. Also, the installation of the surface upgrade might puncture the tank farm liner which is located about 1-foot below ground.

6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _) Explanation The monitoring port is located in a secured area that is fenced and locked.

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes X No _)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes _ No X N/A Borehole size 2-inch Casing size 2-inch)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _ Drilling Method Percussion hammer)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3.2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3.2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Stainless steel [1]	2 I.D or O.D.?	0 - 20	N.F.	23	N.F.	N.F.

[1] The pipe has no perforations and is capped at the top and bottom.

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Seal Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
None	N/A	N/A	N/A

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3.3.1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No X N/A _) Explanation The monitoring port is completed in the alluvium. The base of the alluvium is commonly the first perched interval.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X N/A _) Explanation (Qualify data/specify perched intervals if applicable) See Section c above.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes _ No _ N/A X) Explanation Since the monitoring port is completed in permeable alluvium, it should not promote vertical fluid migration.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Personal communication, Ken Taylor, WINCO (Oct. 1992 and Feb. 1993)

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: EG&G Observation/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- ( ) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- (X) Boring is not sealed, but remediation is unnecessary.
- (X) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The monitoring port, which was pounded into the alluvium with a percussion hammer, is constructed of 2-inch unperforated stainless steel pipe capped at the bottom and top. The port is used for checking radioactivity in the alluvium at the ICPP tank farm and is not a well as defined by the State of Idaho.

Deficiencies: None. The surface completion of the monitoring port was not upgraded because it is located in a contaminated soil area. Also, installation of the upgrade might puncture the tank farm liner which is located about 1-foot below ground.

Remediation: None

GEOLOGIC LOG

Well Name 81-08

Source: Construction Data

****

Interval (feet below surface)

Begin	End	Description
0	20	Alluvium

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date August 18, 1992

WellName: 81–08

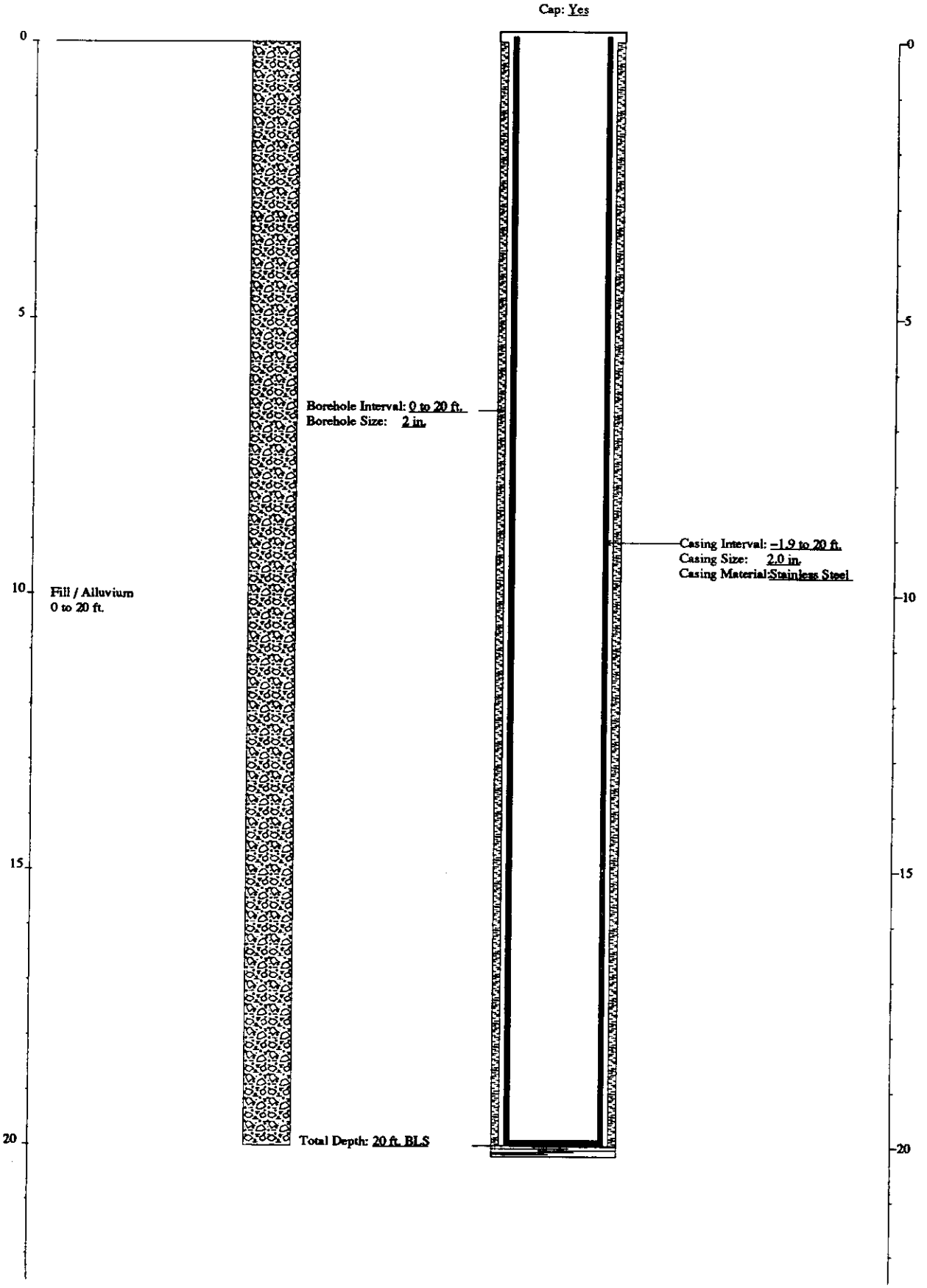
06/10/1993

Facility: CPP
Well Type: Scientific Instrumentation
Well Status: Active
Year Drilled: NF
Total Depth: 20

Easting: 296877.8
Northing: 695594.9
Longitude: 1125559.211
Latitude: 433422.166
Completion Depth: NA

Driller: NF
Geologist: NF
Drilling Method: Percussion Hammer
Drilling Fluid: NF
Land Surface: 4919.1

Water Level: NA
Water Level Date: NA
Water Level Access: NA



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: ICPP | PAGE 1 of 7 | Well Name/No. 81-09

A. WELL/BORING USE

1) Year drilled: N.F.

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) RCRA Monitoring
( ) CERCLA Characterization
( ) USGS Observation
( ) No Documented Use
(X) Other :WINCO plans to use after their program plan is updated.

3) Constituents monitored currently: Radioactivity in the alluvium

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: WINCO / Ken Taylor

B. WELL/BORING INFORMATION

1) Construction Category
( ) Surface Percolation Well
( ) Gas Port
( ) Neutron Access Port
(X) Scientific Instrumentation
  (X) Radioactivity Monitoring
  ( ) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
(X) None
( ) Vapor Sampler
( ) Gypsum Block
( ) Heat Dissipation Sensor
( ) Lysimeter
( ) Psychrometer
( ) Salinity Probe
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 23 ft. Top of basalt = N.F. ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
( ) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes _ No X) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes _ No X)
4) Does the well contain a survey marker: (Yes _ No X)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No X N/A _)
   Explanation The monitoring port is located within the ICPP tank farm, which is a contaminated soil area. Also, the installation of the surface upgrade might puncture the tank farm liner which is located about 1-foot below ground.

6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _) Explanation The monitoring port is located in a secured area that is fenced and locked.

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes X No _)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes _ No X N/A Borehole size 2-inch Casing size 2-inch)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _ Drilling Method Percussion hammer)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Stainless steel (1)	2 I.D or O.D.?	0 - 23	N.F.	20	N.F.	N.F.

(1) The pipe has no perforations and is capped at the top and bottom.

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Seal Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
None	N/A	N/A	N/A

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3.3.1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No X N/A _) Explanation The monitoring port is completed in the alluvium. The base of the alluvium is commonly the first perched interval.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X N/A _) Explanation (Qualify data/specify perched intervals if applicable) See Section c above.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes _ No _ N/A X) Explanation Since the monitoring port is completed in permeable alluvium, it should not promote vertical fluid migration.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: ICPP Well Name/No. 81-09

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Personal communication, Ken Taylor, WINCO (Oct. 1992 and Feb. 1993)

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: EG&G Observation/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- ( ) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- (X) Boring is not sealed, but remediation is unnecessary.
- (X) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The monitoring port, which was pounded into the alluvium with a percussion hammer, is constructed of 2-inch unperforated stainless steel pipe capped at the bottom and top. The port is used for checking radioactivity in the alluvium at the ICPP tank farm and is not a well as defined by the State of Idaho.

Deficiencies: None. The surface completion of the monitoring port was not upgraded because it is located in a contaminated soil area. Also, installation of the upgrade might puncture the tank farm liner which is located about 1-foot below ground.

Remediation: None

GEOLOGIC LOG

Well Name 81-09

Source: Construction Data

****

Interval (feet below surface)

Begin	End	Description
0	23	Alluvium

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date August 18, 1992

WellName: 81-09

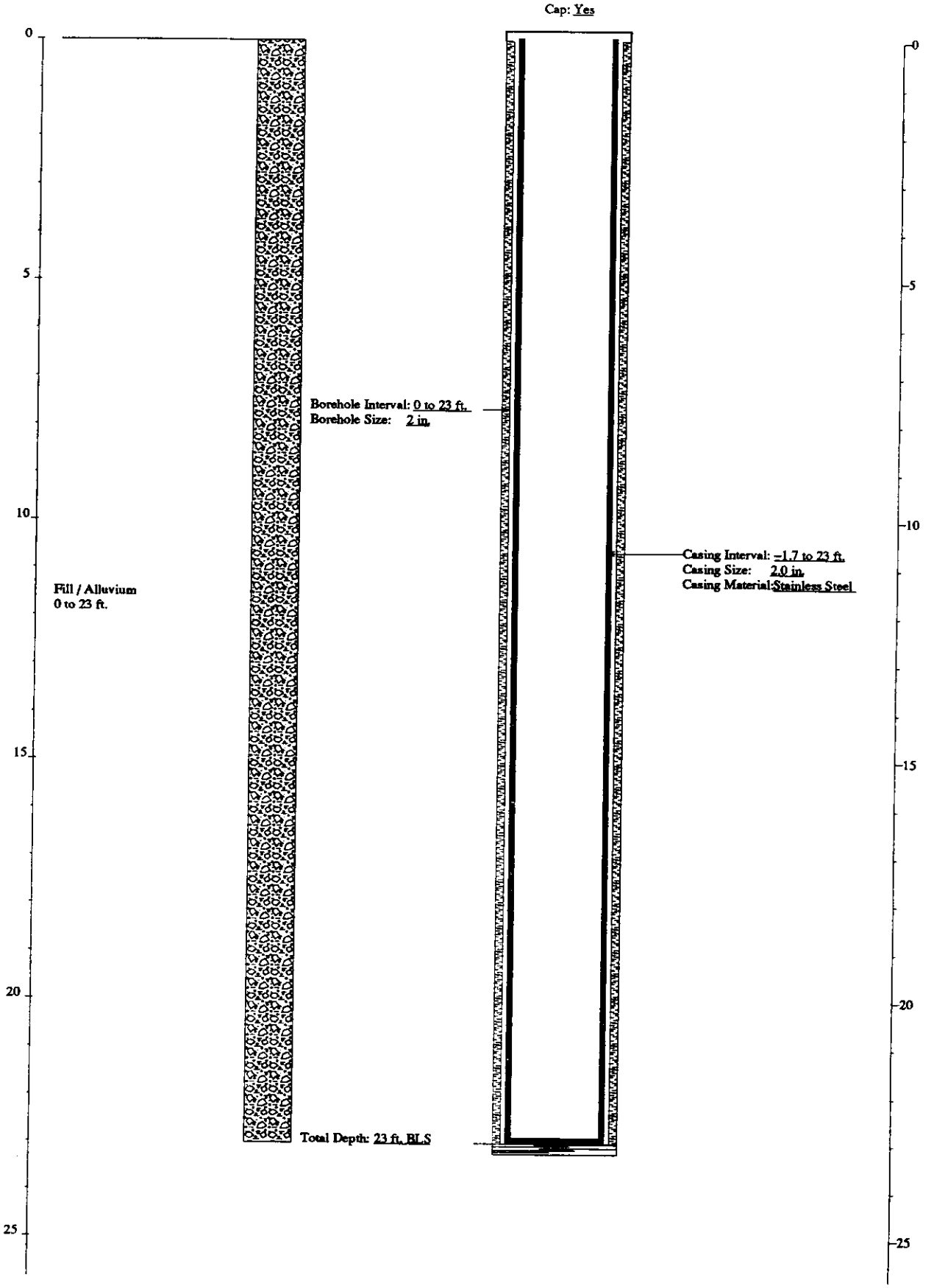
06/11/1993

Facility: CPP
Well Type: Scientific Instrumentation
Well Status: Active
Year Drilled: NF
Total Depth: 23

Easting: 296903.3
Northing: 695619.3
Longitude: 1125558.867
Latitude: 433422.409
Completion Depth: NA

Driller: NF
Geologist: NF
Drilling Method: Percussion Hammer
Drilling Fluid: NF
Land Surface: 4918.7

Water Level: NA
Water Level Date: NA
Water Level Access: NA



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: ICPP | PAGE 1 of 7 | Well Name/No. 81-10

A. WELL/BORING USE

1) Year drilled: N.F.

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) RCRA Monitoring
( ) CERCLA Characterization
( ) USGS Observation
( ) No Documented Use
(X) Other :WINCO plans to use after their program plan is updated.

3) Constituents monitored currently: Radioactivity in the alluvium

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: WINCO / Ken Taylor

B. WELL/BORING INFORMATION

1) Construction Category
( ) Surface Percolation Well
( ) Gas Port
( ) Neutron Access Port
(X) Scientific Instrumentation
(X) Radioactivity Monitoring
( ) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
(X) None
( ) Vapor Sampler
( ) Gypsum Block
( ) Heat Dissipation Sensor
( ) Lysimeter
( ) Psychrometer
( ) Salinity Probe
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 30 ft. Top of basalt = N.F. ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
( ) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes _ No X) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes _ No X)
4) Does the well contain a survey marker: (Yes _ No X)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No X N/A _)
   Explanation The monitoring port is located within the ICPP tank farm, which is a contaminated soil area. Also, the installation of the surface upgrade might puncture the tank farm liner which is located about 1-foot below ground.

6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _) Explanation The monitoring port is located in a secured area that is fenced and locked.

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes X No _)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes _ No X N/A Borehole size 2-inch Casing size 2-inch)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _ Drilling Method Percussion hammer)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Stainless steel (1)	2 I.D or O.D.?	0 - 30	N.F.	26	N.F.	N.F.

(1) The pipe has no perforations and is capped at the top and bottom.

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Seal Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
None	N/A	N/A	N/A

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3,3,1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No X N/A _) Explanation The monitoring port is completed in the alluvium. The base of the alluvium is commonly the first perched interval.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X N/A _) Explanation (Qualify data/specify perched intervals if applicable) See Section c above.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes _ No _ N/A X) Explanation Since the monitoring port is completed in permeable alluvium, it should not promote vertical fluid migration.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: ICPP Well Name/No. 81-10

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Personal communication, Ken Taylor, WINCO (Oct. 1992 and Feb. 1993)

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: EG&G Observation/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- ( ) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- (X) Boring is not sealed, but remediation is unnecessary.
- (X) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The monitoring port, which was pounded into the alluvium with a percussion hammer, is constructed of 2-inch unperforated stainless steel pipe capped at the bottom and top. The port is used for checking radioactivity in the alluvium at the ICPP tank farm and is not a well as defined by the State of Idaho.

Deficiencies: None. The surface completion of the monitoring port was not upgraded because it is located in a contaminated soil area. Also, installation of the upgrade might puncture the tank farm liner which is located about 1-foot below ground.

Remediation: None

GEOLOGIC LOG

Well Name 81-10

Source: Construction Data

****

Interval (feet below surface)

Begin	End	Description
0	30	Alluvium

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date August 18, 1992

WellName: 81-10

06/11/1993

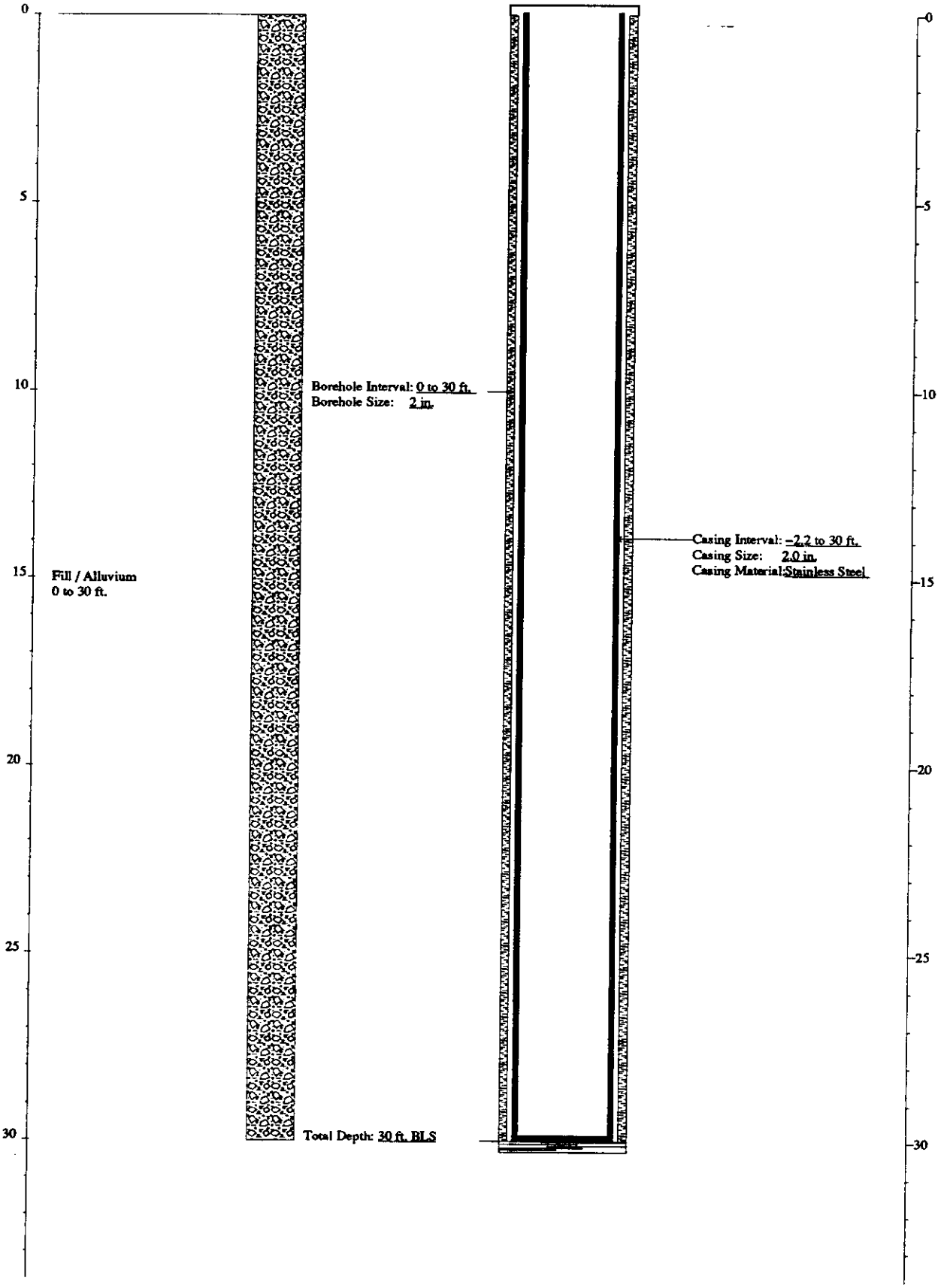
Facility: CPP
Well Type: Scientific Instrumentation
Well Status: Active
Year Drilled: NF
Total Depth: 30

Easting: 296902.8
Northing: 695595.0
Longitude: 1125558.871
Latitude: 433422.169
Completion Depth: NA

Driller: NF
Geologist: NF
Drilling Method: Percussion Hammer
Drilling Fluid: NF
Land Surface: 4919.3

Water Level: NA
Water Level Date: NA
Water Level Access: NA

Cap: Yes



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: ICPP Well Name/No. 81-11

A. WELL/BORING USE

1) Year drilled: N.F.

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) RCRA Monitoring
( ) CERCLA Characterization
( ) USGS Observation
( ) No Documented Use
(X) Other :WINCO plans to use after their program plan is updated.

3) Constituents monitored currently: Radioactivity in the alluvium

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: WINCO / Ken Taylor

B. WELL/BORING INFORMATION

1) Construction Category
( ) Surface Percolation Well
( ) Gas Port
( ) Neutron Access Port
(X) Scientific Instrumentation
  (X) Radioactivity Monitoring
  ( ) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
(X) None
( ) Vapor Sampler
( ) Gypsum Block
( ) Heat Dissipation Sensor
( ) Lysimeter
( ) Psychrometer
( ) Salinity Probe
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 20 ft. Top of basalt = N.F. ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
( ) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes _ No X) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes _ No X)
4) Does the well contain a survey marker: (Yes _ No X)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No X N/A _)
   Explanation The monitoring port is located within the ICPP tank farm, which is a contaminated soil area. Also, the installation of the surface upgrade might puncture the tank farm liner which is located about 1-foot below ground.

6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _) Explanation The monitoring port is located in a secured area that is fenced and locked.

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes X No _)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes _ No X N/A Borehole size 2-inch Casing size 2-inch)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _ Drilling Method Percussion hammer)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Stainless steel [1]	2 I.D or O.D.?	0 - 20	N.F.	16	N.F.	N.F.

[1] The pipe has no perforations and is capped at the top and bottom.

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Seal Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
None	N/A	N/A	N/A

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3,3,1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No X N/A _) Explanation The monitoring port is completed in the alluvium. The base of the alluvium is commonly the first perched interval.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X N/A _) Explanation (Qualify data/specify perched intervals if applicable) See Section c above.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes _ No _ N/A X) Explanation Since the monitoring port is completed in permeable alluvium, it should not promote vertical fluid migration.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Personal communication, Ken Taylor, WINCO (Oct. 1992 and Feb. 1993)

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: EG&G Observation/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- ( ) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- (X) Boring is not sealed, but remediation is unnecessary.
- (X) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The monitoring port, which was pounded into the alluvium with a percussion hammer, is constructed of 2-inch unperforated stainless steel pipe capped at the bottom and top. The port is used for checking radioactivity in the alluvium at the ICPP tank farm and is not a well as defined by the State of Idaho.

Deficiencies: None. The surface completion of the monitoring port was not upgraded because it is located in a contaminated soil area. Also, installation of the upgrade might puncture the tank farm liner which is located about 1-foot below ground.

Remediation: None

GEOLOGIC LOG

Well Name 81-11

Source: Construction Data

****

Interval (feet below surface)

Begin	End	Description
0	20	Alluvium

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date August 18, 1992

WellName: 81-11

06/25/1993

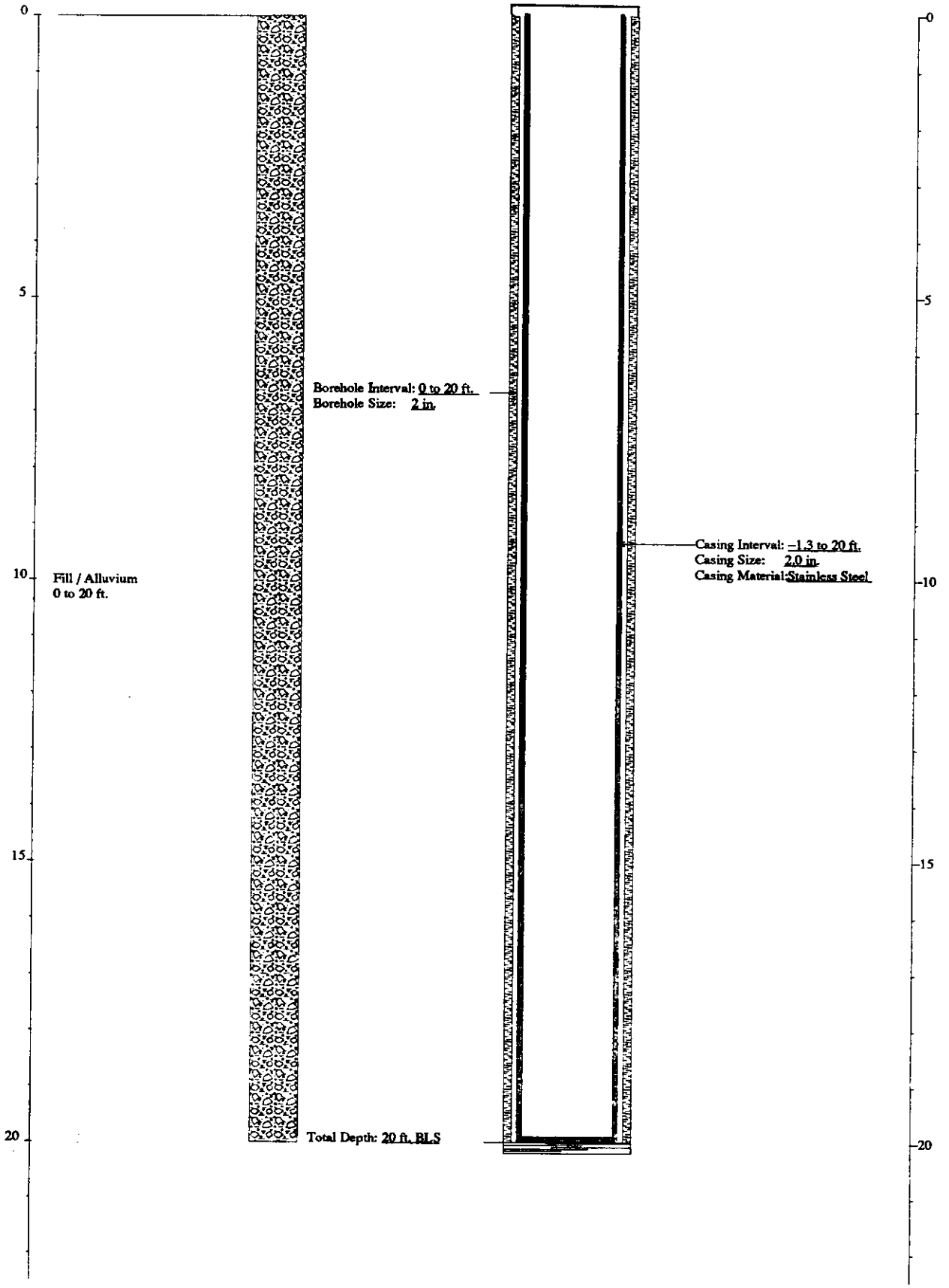
Facility: CPP
Well Type: Scientific Instrumentation
Well Status: Active
Year Drilled: NF
Total Depth: 20

Easting: 296913.0
Northing: 695549.0
Longitude: 1125558.727
Latitude: 433421.716
Completion Depth: NA

Driller: NF
Geologist: NF
Drilling Method: Percussion Hammer
Drilling Fluid: NF
Land Surface: 4918.0

Water Level: NA
Water Level Date: NA
Water Level Access: NA

Cap: Yes



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: ICPP Well Name/No. 81-12

A. WELL/BORING USE

1) Year drilled: N.F.

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) RCRA Monitoring
( ) CERCLA Characterization
( ) USGS Observation
( ) No Documented Use
(X) Other :WINCO plans to use after their program plan is updated.

3) Constituents monitored currently: Radioactivity in the alluvium

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: WINCO / Ken Taylor

B. WELL/BORING INFORMATION

1) Construction Category
( ) Surface Percolation Well
( ) Gas Port
( ) Neutron Access Port
(X) Scientific Instrumentation
  (X) Radioactivity Monitoring
  ( ) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
(X) None
( ) Vapor Sampler
( ) Gypsum Block
( ) Heat Dissipation Sensor
( ) Lysimeter
( ) Psychrometer
( ) Salinity Probe
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 13 ft. Top of basalt = N.F. ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
(X) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes _ No X) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes _ No X)
4) Does the well contain a survey marker: (Yes _ No X)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No X N/A _)
   Explanation The monitoring port is located within the ICPP tank farm, which is a contaminated soil area. Also, the installation of the surface upgrade might puncture the tank farm liner which is located about 1-foot below ground.

6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _) Explanation The monitoring port is located in a secured area that is fenced and locked.

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes _ No X)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes _ No X N/A Borehole size 2-inch Casing size 2-inch)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _ Drilling Method Percussion hammer)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3.2.1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3.2.2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Stainless steel (1)	2 I.D or O.D.?	0 - 13	N.F.	21	N.F.	N.F.

(1) The pipe has no perforations and is capped at the top and bottom.

3) Seal

State of Idaho Reg. 3.3.1 and 3.3.2.1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Seal Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
None	N/A	N/A	N/A

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3.3.1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No X N/A _) Explanation The monitoring port is completed in the alluvium. The base of the alluvium is commonly the first perched interval.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X N/A _) Explanation (Qualify data/specify perched intervals if applicable) See Section c above.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes _ No _ N/A X) Explanation Since the monitoring port is completed in permeable alluvium, it should not promote vertical fluid migration.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: ICPP Well Name/No. 81-12

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Personal communication, Ken Taylor, WINCO (Oct. 1992 and Feb. 1993)

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: EG&G Observation/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- ( ) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- (X) Boring is not sealed, but remediation is unnecessary.
- (X) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The monitoring port, which was pounded into the alluvium with a percussion hammer, is constructed of 2-inch unperforated stainless steel pipe capped at the bottom and top. The port is used for checking radioactivity in the alluvium at the ICPP tank farm and is not a well as defined by the State of Idaho.

Deficiencies: None. The surface completion of the monitoring port was not upgraded because it is located in a contaminated soil area. Also, installation of the upgrade might puncture the tank farm liner which is located about 1-foot below ground.

Remediation: None

GEOLOGIC LOG

Well Name 81-12

Source: Construction Data

****

Interval (feet below surface)

Begin	End	Description
0	13	Alluvium

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date August 18, 1992

WellName: 81-12

06/11/1993

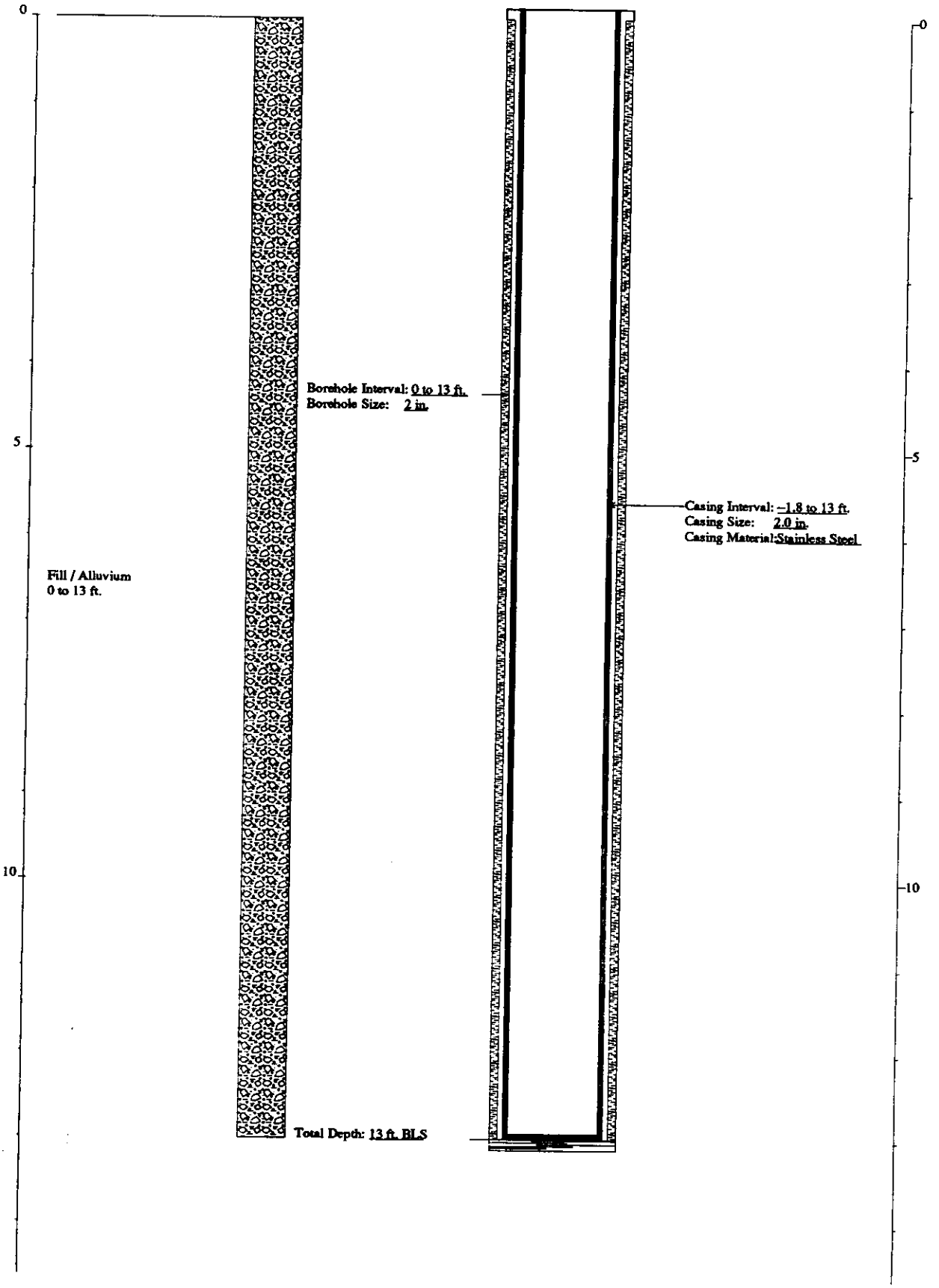
Facility: CPP
Well Type: Scientific Instrumentation
Well Status: Active
Year Drilled: NF
Total Depth: 13

Easting: 296944.6
Northing: 695537.9
Longitude: 1125558.296
Latitude: 433421.609
Completion Depth: NA

Driller: NF
Geologist: NF
Drilling Method: Percussion Hammer
Drilling Fluid: NF
Land Surface: 4918.3

Water Level: NA
Water Level Date: NA
Water Level Access: NA

Cap: Yes



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: ICPP Well Name/No. 81-13

A. WELL/BORING USE

1) Year drilled: N.F.

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) RCRA Monitoring
( ) CERCLA Characterization
( ) USGS Observation
( ) No Documented Use
(X) Other :WINCO plans to use after their program plan is updated.

3) Constituents monitored currently: Radioactivity in the alluvium

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: WINCO / Ken Taylor

B. WELL/BORING INFORMATION

1) Construction Category
( ) Surface Percolation Well
( ) Gas Port
( ) Neutron Access Port
(X) Scientific Instrumentation
  (X) Radioactivity Monitoring
  ( ) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
(X) None
( ) Vapor Sampler
( ) Gypsum Block
( ) Heat Dissipation Sensor
( ) Lysimeter
( ) Psychrometer
( ) Salinity Probe
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 20 ft. Top of basalt = N.F. ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
( ) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes _ No X) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes _ No X)
4) Does the well contain a survey marker: (Yes _ No X)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No X N/A _)
   Explanation The monitoring port is located within the ICPP tank farm, which is a contaminated soil area. Also, the installation of the surface upgrade might puncture the tank farm liner which is located about 1-foot below ground.

6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _) Explanation The monitoring port is located in a secured area that is fenced and locked.

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes X No _)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes _ No X N/A Borehole size 2-inch Casing size 2-inch)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _ Drilling Method Percussion hammer)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Stainless steel (1)	2 I.D or O.D.?	0 - 20	N.F.	30	N.F.	N.F.

(1) The pipe has no perforations and is capped at the top and bottom.

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Seal Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
None	N/A	N/A	N/A

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3,3,1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No X N/A _) Explanation The monitoring port is completed in the alluvium. The base of the alluvium is commonly the first perched interval.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X N/A _) Explanation (Qualify data/specify perched intervals if applicable) See Section c above.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes _ No _ N/A X) Explanation Since the monitoring port is completed in permeable alluvium, it should not promote vertical fluid migration.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Personal communication, Ken Taylor, WINCO (Oct. 1992 and Feb. 1993)

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: EG&G Observation/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- ( ) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- (X) Boring is not sealed, but remediation is unnecessary.
- (X) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The monitoring port, which was pounded into the alluvium with a percussion hammer, is constructed of 2-inch unperforated stainless steel pipe capped at the bottom and top. The port is used for checking radioactivity in the alluvium at the ICPP tank farm and is not a well as defined by the State of Idaho.

Deficiencies: None. The surface completion of the monitoring port was not upgraded because it is located in a contaminated soil area. Also, installation of the upgrade might puncture the tank farm liner which is located about 1-foot below ground.

Remediation: None

GEOLOGIC LOG

Well Name 81-13

Source: Construction Data

****

Interval (feet below surface)

Begin	End	Description
0	20	Alluvium

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date August 18, 1992

WellName: 81-13

06/11/1993

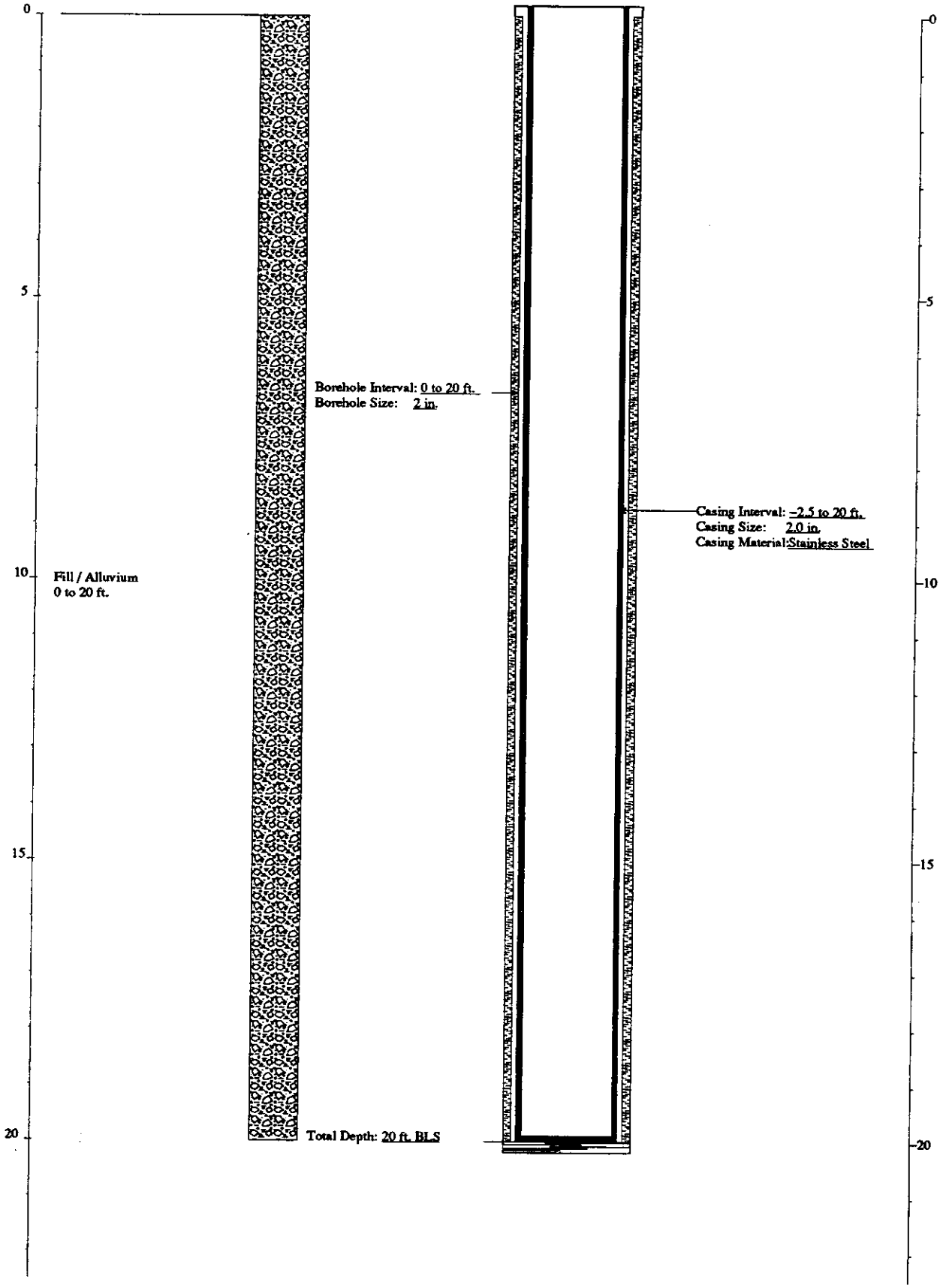
Facility: CPP
Well Type: Scientific Instrumentation
Well Status: Active
Year Drilled: NF
Total Depth: 20

Easting: 296923.7
Northing: 695644.1
Longitude: 1125558.593
Latitude: 433422.656
Completion Depth: NA

Driller: NF
Geologist: NF
Drilling Method: Percussion Hammer
Drilling Fluid: NF
Land Surface: 4919.3

Water Level: NA
Water Level Date: NA
Water Level Access: NA

Cap: Yes



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: ICPP | PAGE 1 of 7 | Well Name/No. 81-14

A. WELL/BORING USE

1) Year drilled: N.F.

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) RCRA Monitoring
( ) CERCLA Characterization
( ) USGS Observation
( ) No Documented Use
(X) Other :WINCO plans to use after their program plan is updated.

3) Constituents monitored currently: Radioactivity in the alluvium

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: WINCO / Ken Taylor

B. WELL/BORING INFORMATION

1) Construction Category
( ) Surface Percolation Well
( ) Gas Port
( ) Neutron Access Port
(X) Scientific Instrumentation
  (X) Radioactivity Monitoring
  ( ) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
(X) None
( ) Vapor Sampler
( ) Gypsum Block
( ) Heat Dissipation Sensor
( ) Lysimeter
( ) Psychrometer
( ) Salinity Probe
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 30 ft. Top of basalt = N.F. ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
( ) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes _ No X) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes _ No X)
4) Does the well contain a survey marker: (Yes _ No X)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No X N/A _)
   Explanation The monitoring port is located within the ICPP tank farm, which is a contaminated soil area. Also, the installation of the surface upgrade might puncture the tank farm liner which is located about 1-foot below ground.

6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _) Explanation The monitoring port is located in a secured area that is fenced and locked.

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes X No _)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes _ No X N/A Borehole size 2-inch Casing size 2-inch)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _ Drilling Method Percussion hammer)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3.2.1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3.2.2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Stainless steel [1]	2 I.D or O.D.?	0 - 30	N.F.	23	N.F.	N.F.

[1] The pipe has no perforations and is capped at the top and bottom.

3) Seal

State of Idaho Reg. 3.3.1 and 3.3.2.1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Seal Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
None	N/A	N/A	N/A

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3,3,1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No X N/A _) Explanation The monitoring port is completed in the alluvium. The base of the alluvium is commonly the first perched interval.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X N/A _) Explanation (Qualify data/specify perched intervals if applicable) See Section c above.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes _ No _ N/A X) Explanation Since the monitoring port is completed in permeable alluvium, it should not promote vertical fluid migration.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Personal communication, Ken Taylor, WINCO (Oct. 1992 and Feb. 1993)

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: EG&G Observation/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- ( ) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- (X) Boring is not sealed, but remediation is unnecessary.
- (X) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The monitoring port, which was pounded into the alluvium with a percussion hammer, is constructed of 2-inch unperforated stainless steel pipe capped at the bottom and top. The port is used for checking radioactivity in the alluvium at the ICPP tank farm and is not a well as defined by the State of Idaho.

Deficiencies: None. The surface completion of the monitoring port was not upgraded because it is located in a contaminated soil area. Also, installation of the upgrade might puncture the tank farm liner which is located about 1-foot below ground.

Remediation: None

GEOLOGIC LOG

Well Name 81-14

Source: Construction Data

****

Interval (feet below surface)

Begin	End	Description
0	30	Alluvium

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date August 18, 1992

WellName: 81-14

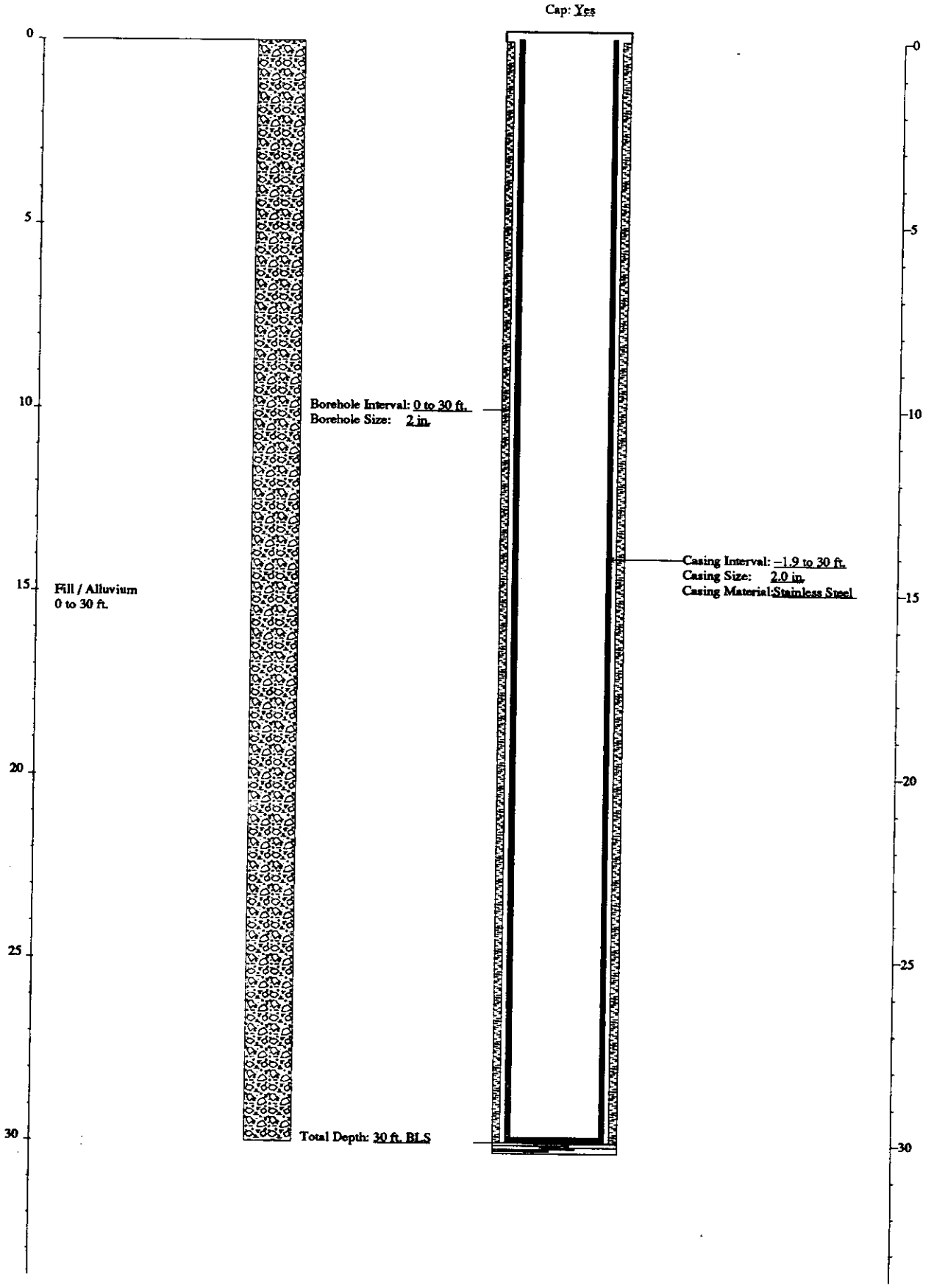
06/11/1993

Facility: CPP
Well Type: Scientific Instrumentation
Well Status: Active
Year Drilled: NF
Total Depth: 30

Easting: 296947.6
Northing: 695629.1
Longitude: 1125558.267
Latitude: 433422.510
Completion Depth: NA

Driller: NF
Geologist: NF
Drilling Method: Percussion Hammer
Drilling Fluid: NF
Land Surface: 4918.8

Water Level: NA
Water Level Date: NA
Water Level Access: NA



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: ICPP Well Name/No. 81-15

A. WELL/BORING USE

1) Year drilled: N.F.

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) RCRA Monitoring
( ) CERCLA Characterization
( ) USGS Observation
( ) No Documented Use
(X) Other :WINCO plans to use after their program plan is updated.

3) Constituents monitored currently: Radioactivity in the alluvium

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: WINCO / Ken Taylor

B. WELL/BORING INFORMATION

1) Construction Category
( ) Surface Percolation Well
( ) Gas Port
( ) Neutron Access
(X) Scientific Instrumentation
  (X) Radioactivity Monitoring
  ( ) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
(X) None
( ) Vapor Sampler
( ) Gypsum Block
( ) Heat Dissipation Sensor
( ) Lysimeter
( ) Psychrometer
( ) Salinity Probe
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 15 ft. Top of basalt = N.F. ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
(X) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes _ No X) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes _ No X)
4) Does the well contain a survey marker: (Yes _ No X)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No X N/A _)
   Explanation The monitoring port is located within the ICPP tank farm, which is a contaminated soil area. Also, the installation of the surface upgrade might puncture the tank farm liner which is located about 1-foot below ground.

6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _) Explanation The monitoring port is located in a secured area that is fenced and locked.

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes _ No X)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes _ No X N/A Borehole size 2-inch Casing size 2-inch)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _ Drilling Method Percussion hammer)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Stainless steel [1]	2 I.D or O.D.?	0 - 15	N.F.	30	N.F.	N.F.

[1] The pipe has no perforations and is capped at the top and bottom.

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Seal Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
None	N/A	N/A	N/A

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3.3.1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No X N/A _) Explanation The monitoring port is completed in the alluvium. The base of the alluvium is commonly the first perched interval.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X N/A _) Explanation (Qualify data/specify perched intervals if applicable) See Section c above.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes _ No _ N/A X) Explanation Since the monitoring port is completed in permeable alluvium, it should not promote vertical fluid migration.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: ICPP | PAGE 6 of 7 | Well Name/No. 81-15

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Personal communication, Ken Taylor, WINCO (Oct. 1992 and Feb. 1993)

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: EG&G Observation/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- ( ) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- (X) Boring is not sealed, but remediation is unnecessary.
- (X) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The monitoring port, which was pounded into the alluvium with a percussion hammer, is constructed of 2-inch unperforated stainless steel pipe capped at the bottom and top. The port is used for checking radioactivity in the alluvium at the ICPP tank farm and is not a well as defined by the State of Idaho.

Deficiencies: None. The surface completion of the monitoring port was not upgraded because it is located in a contaminated soil area. Also, installation of the upgrade might puncture the tank farm liner which is located about 1-foot below ground.

Remediation: None

GEOLOGIC LOG

Well Name 81-15

Source: Construction Data

****

Interval (feet below surface)

Begin	End	Description
0	15	Alluvium

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date August 18, 1992

WellName: 81-15

06/11/1993

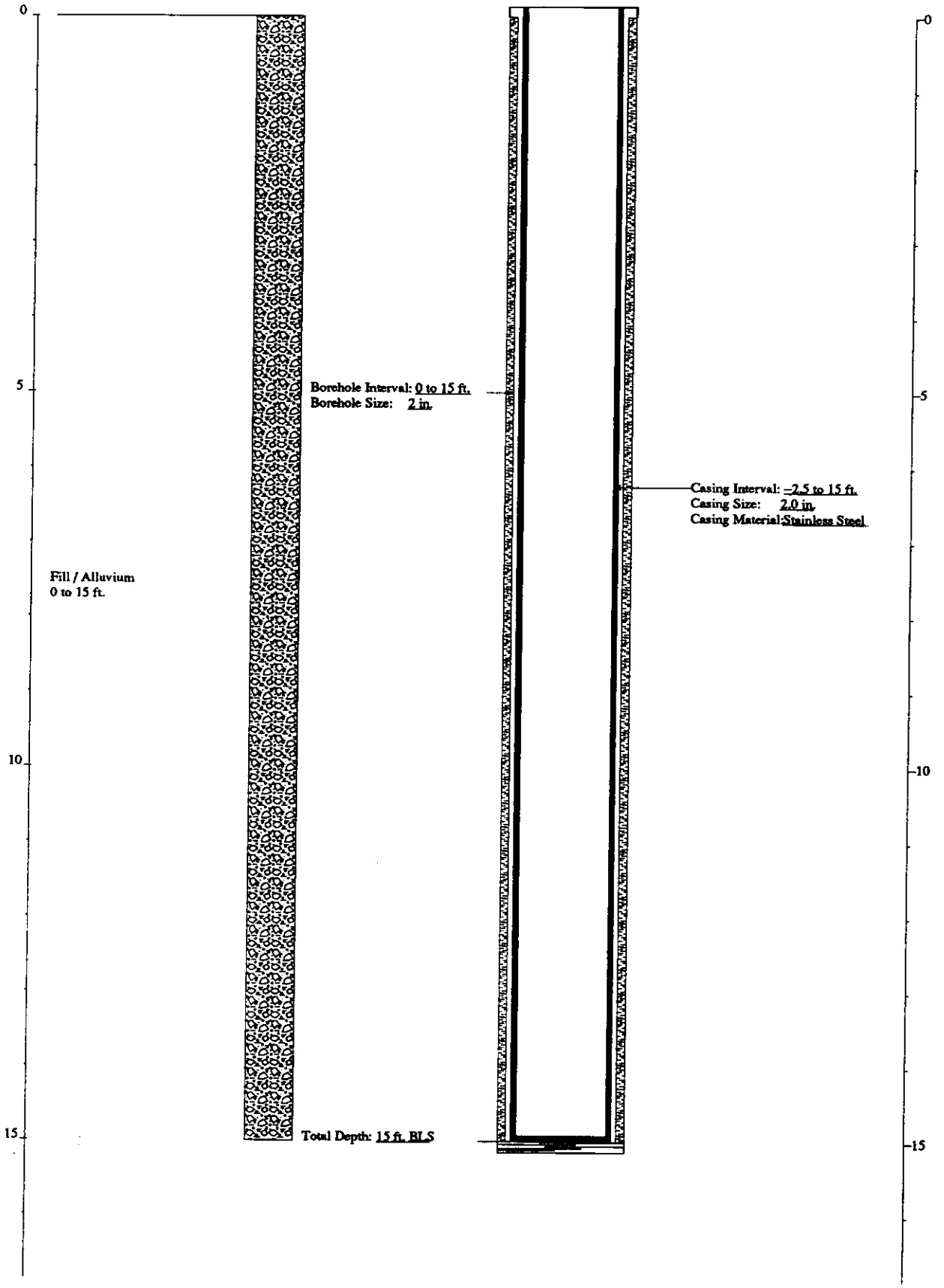
Facility: CPP
Well Type: Scientific Instrumentation
Well Status: Active
Year Drilled: NF
Total Depth: 15

Easting: 296923.0
Northing: 695667.4
Longitude: 1125558.606
Latitude: 433422.886
Completion Depth: NA

Driller: NF
Geologist: NF
Drilling Method: Percussion Hammer
Drilling Fluid: NF
Land Surface: 4919.1

Water Level: NA
Water Level Date: NA
Water Level Access: NA

Cap: Yes



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: ICPP Well Name/No. 81-16

A. WELL/BORING USE

1) Year drilled: N.F.

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) RCRA Monitoring
( ) CERCLA Characterization
( ) USGS Observation
( ) No Documented Use
(X) Other :WINCO plans to use after their program plan is updated.

3) Constituents monitored currently: Radioactivity in the alluvium

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: WINCO / Ken Taylor

B. WELL/BORING INFORMATION

1) Construction Category
( ) Surface Percolation Well
( ) Gas Port
( ) Neutron Access Port
(X) Scientific Instrumentation
  (X) Radioactivity Monitoring
  ( ) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
(X) None
( ) Vapor Sampler
( ) Gypsum Block
( ) Heat Dissipation Sensor
( ) Lysimeter
( ) Psychrometer
( ) Salinity Probe
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 20 ft. Top of basalt = N.F. ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
( ) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes _ No X) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes _ No X)
4) Does the well contain a survey marker: (Yes _ No X)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No X N/A _)
   Explanation The monitoring port is located within the ICPP tank farm, which is a contaminated soil area. Also, the installation of the surface upgrade might puncture the tank farm liner which is located about 1-foot below ground.

6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _) Explanation The monitoring port is located in a secured area that is fenced and locked.

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes X No _)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes _ No X N/A Borehole size 2-inch Casing size 2-inch)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _ Drilling Method Percussion hammer)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Stainless steel (1)	2 I.D or O.D.?	0 - 20	N.F.	23	N.F.	N.F.

(1) The pipe has no perforations and is capped at the top and bottom.

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Seal Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
None	N/A	N/A	N/A

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3.3.1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No X N/A _) Explanation The monitoring port is completed in the alluvium. The base of the alluvium is commonly the first perched interval.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X N/A _) Explanation (Qualify data/specify perched intervals if applicable) See Section c above.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes _ No _ N/A X) Explanation Since the monitoring port is completed in permeable alluvium, it should not promote vertical fluid migration.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: ICPP | PAGE 6 of 7 | Well Name/No. 81-16

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Personal communication, Ken Taylor, WINCO (Oct. 1992 and Feb. 1993)

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: EG&G Observation/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- ( ) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- (X) Boring is not sealed, but remediation is unnecessary.
- (X) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The monitoring port, which was pounded into the alluvium with a percussion hammer, is constructed of 2-inch unperforated stainless steel pipe capped at the bottom and top. The port is used for checking radioactivity in the alluvium at the ICPP tank farm and is not a well as defined by the State of Idaho.

Deficiencies: None. The surface completion of the monitoring port was not upgraded because it is located in a contaminated soil area. Also, installation of the upgrade might puncture the tank farm liner which is located about 1-foot below ground.

Remediation: None

GEOLOGIC LOG

Well Name 81-16

Source: Construction Data

****

Interval (feet below surface)

Begin	End	Description
0	20	Alluvium

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date August 18, 1992

WellName: 81–16

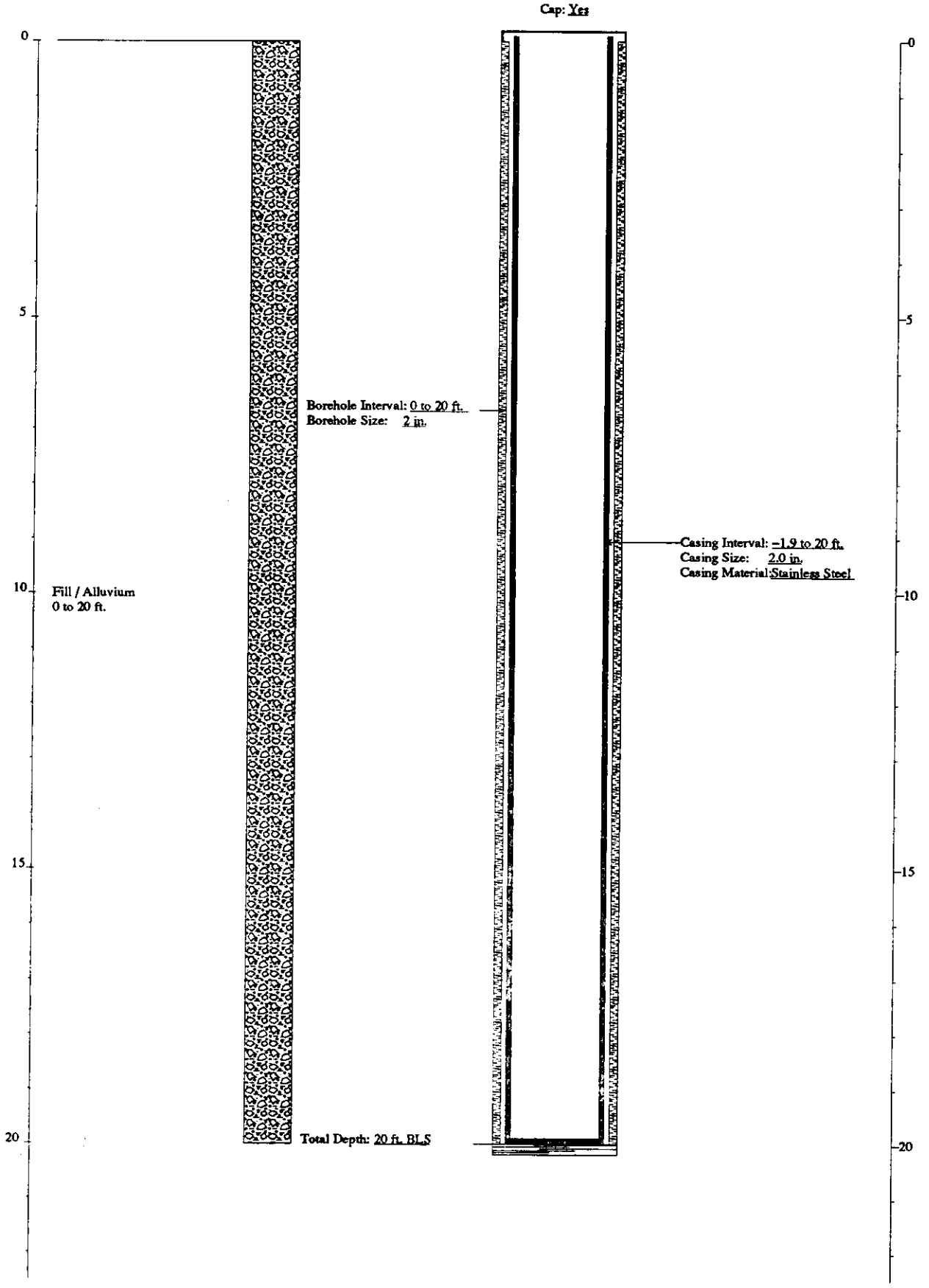
06/25/1993

Facility: CPP
Well Type: Scientific Instrumentation
Well Status: Active
Year Drilled: NF
Total Depth: 20

Easting: 297049.7
Northing: 695592.1
Longitude: 1125556.875
Latitude: 433422.154
Completion Depth: NA

Driller: NF
Geologist: NF
Drilling Method: Percussion Hammer
Drilling Fluid: NF
Land Surface: 4918.4

Water Level: NA
Water Level Date: NA
Water Level Access: NA



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: ICPP | PAGE 1 of 7 | Well Name/No. 81-17

A. WELL/BORING USE

1) Year drilled: N.F.

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) RCRA Monitoring
( ) CERCLA Characterization
( ) USGS Observation
( ) No Documented Use
(X) Other :WINCO plans to use after their program plan is updated.

3) Constituents monitored currently: Radioactivity in the alluvium

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: WINCO / Ken Taylor

B. WELL/BORING INFORMATION

1) Construction Category
( ) Surface Percolation Well
( ) Gas Port
( ) Neutron Access
(X) Scientific Instrumentation
  (X) Radioactivity Monitoring
  ( ) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
(X) None
( ) Vapor Sampler
( ) Gypsum Block
( ) Heat Dissipation Sensor
( ) Lysimeter
( ) Psychrometer
( ) Salinity Probe
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 20 ft. Top of basalt = N.F. ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
( ) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes _ No X) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes _ No X)
4) Does the well contain a survey marker: (Yes _ No X)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No X N/A _)
   Explanation The monitoring port is located within the ICPP tank farm, which is a contaminated soil area. Also, the installation of the surface upgrade might puncture the tank farm liner which is located about 1-foot below ground.

6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _) Explanation The monitoring port is located in a secured area that is fenced and locked.

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes X No _)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes _ No X N/A Borehole size 2-inch Casing size 2-inch)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _ Drilling Method Percussion hammer)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Stainless steel [1]	2 I.D or O.D.?	0 - 20	N.F.	22	N.F.	N.F.

[1] The pipe has no perforations and is capped at the top and bottom.

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Seal Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
None	N/A	N/A	N/A

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3.3.1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No X N/A _) Explanation The monitoring port is completed in the alluvium. The base of the alluvium is commonly the first perched interval.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X N/A _) Explanation (Qualify data/specify perched intervals if applicable) See Section c above.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes _ No _ N/A X) Explanation Since the monitoring port is completed in permeable alluvium, it should not promote vertical fluid migration.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Personal communication, Ken Taylor, WINCO (Oct. 1992 and Feb. 1993)

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: EG&G Observation/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- ( ) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- (X) Boring is not sealed, but remediation is unnecessary.
- (X) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The monitoring port, which was pounded into the alluvium with a percussion hammer, is constructed of 2-inch unperforated stainless steel pipe capped at the bottom and top. The port is used for checking radioactivity in the alluvium at the ICPP tank farm and is not a well as defined by the State of Idaho.

Deficiencies: None. The surface completion of the monitoring port was not upgraded because it is located in a contaminated soil area. Also, installation of the upgrade might puncture the tank farm liner which is located about 1-foot below ground.

Remediation: None

GEOLOGIC LOG

Well Name 81-17

Source: Construction Data

****

Interval (feet below surface)

Begin	End	Description
0	20	Alluvium

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date August 18, 1992

WellName: 81-17

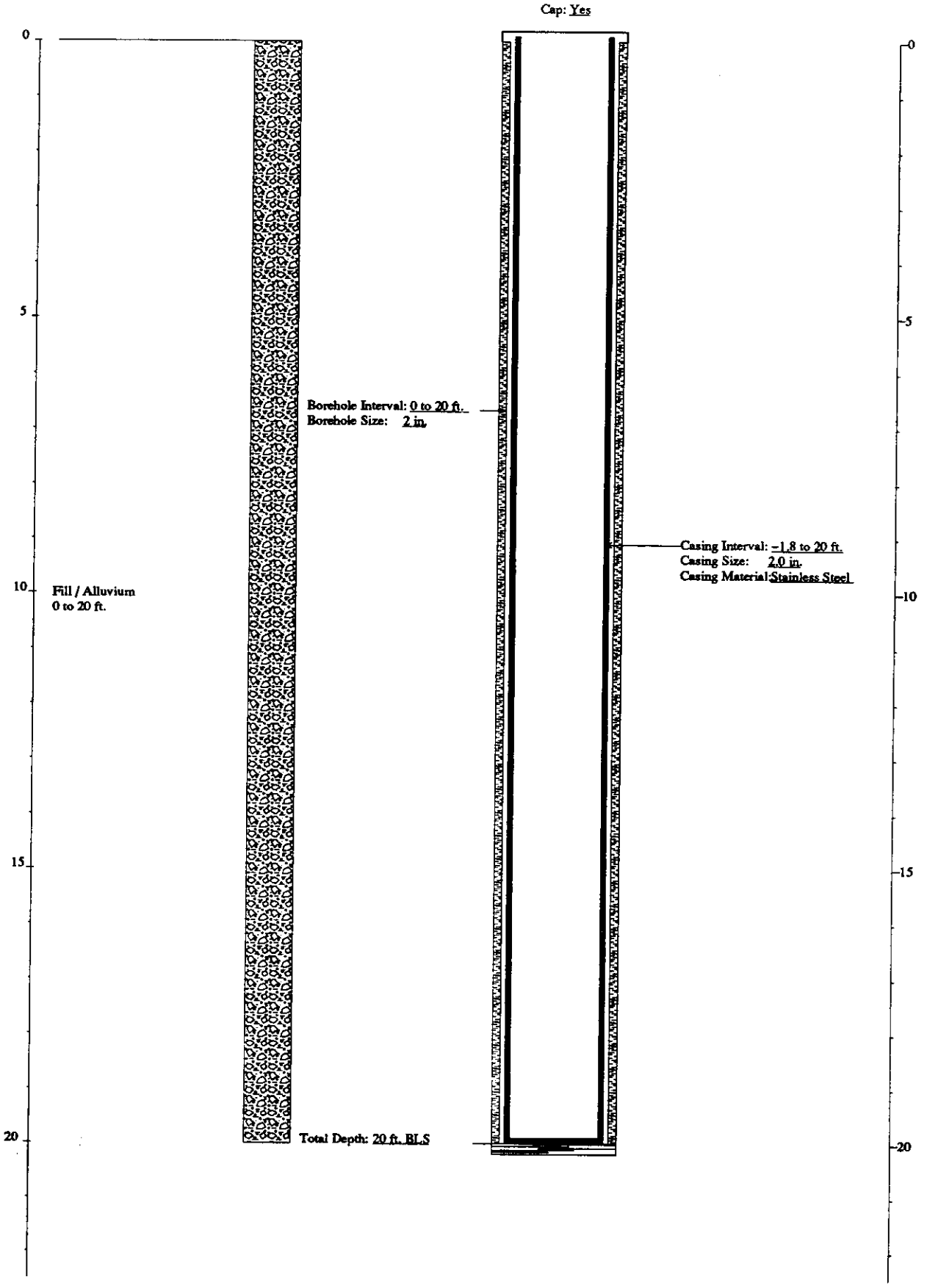
06/11/1993

Facility: CPP
Well Type: Scientific Instrumentation
Well Status: Active
Year Drilled: NF
Total Depth: 20

Easting: 297062.1
Northing: 695693.8
Longitude: 1125556.720
Latitude: 433423.160
Completion Depth: NA

Driller: NF
Geologist: NF
Drilling Method: Percussion Hammer
Drilling Fluid: NF
Land Surface: 4917.4

Water Level: NA
Water Level Date: NA
Water Level Access: NA



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: ICPP Well Name/No. 81-18

A. WELL/BORING USE

1) Year drilled: N.F.

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) RCRA Monitoring
( ) CERCLA Characterization
( ) USGS Observation
( ) No Documented Use
(X) Other :WINCO plans to use after their program plan is updated.

3) Constituents monitored currently: Radioactivity in the alluvium

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: WINCO / Ken Taylor

B. WELL/BORING INFORMATION

1) Construction Category
( ) Surface Percolation Well
( ) Gas Port
( ) Neutron Access
(X) Scientific Instrumentation
  (X) Radioactivity Monitoring
  ( ) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
(X) None
( ) Vapor Sampler
( ) Gypsum Block
( ) Heat Dissipation Sensor
( ) Lysimeter
( ) Psychrometer
( ) Salinity Probe
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 20 ft. Top of basalt = N.F. ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
( ) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes _ No X) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes _ No X)
4) Does the well contain a survey marker: (Yes _ No X)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No X N/A _)
   Explanation The monitoring port is located within the ICPP tank farm, which is a contaminated soil area. Also, the installation of the surface upgrade might puncture the tank farm liner which is located about 1-foot below ground.

6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _) Explanation The monitoring port is located in a secured area that is fenced and locked.

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes X No _)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes _ No X N/A Borehole size 2-inch Casing size 2-inch)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _ Drilling Method Percussion hammer)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Stainless steel [1]	2 I.D or O.D.?	0 - 20	N.F.	20	N.F.	N.F.

[1] The pipe has no perforations and is capped at the top and bottom.

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Seal Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
None	N/A	N/A	N/A

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3,3,1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No X N/A _) Explanation The monitoring port is completed in the alluvium. The base of the alluvium is commonly the first perched interval.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X N/A _) Explanation (Qualify data/specify perched intervals if applicable) See Section c above.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes _ No _ N/A X) Explanation Since the monitoring port is completed in permeable alluvium, it should not promote vertical fluid migration.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Personal communication, Ken Taylor, WINCO (Oct. 1992 and Feb. 1993)

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: EG&G Observation/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- ( ) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- (X) Boring is not sealed, but remediation is unnecessary.
- (X) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The monitoring port, which was pounded into the alluvium with a percussion hammer, is constructed of 2-inch unperforated stainless steel pipe capped at the bottom and top. The port is used for checking radioactivity in the alluvium at the ICPP tank farm and is not a well as defined by the State of Idaho.

Deficiencies: None. The surface completion of the monitoring port was not upgraded because it is located in a contaminated soil area. Also, installation of the upgrade might puncture the tank farm liner which is located about 1-foot below ground.

Remediation: None

GEOLOGIC LOG

Well Name 81-18

Source: Construction Data

****

Interval (feet below surface)

Begin	End	Description
0	20	Alluvium

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date August 18, 1992

WellName: 81-18

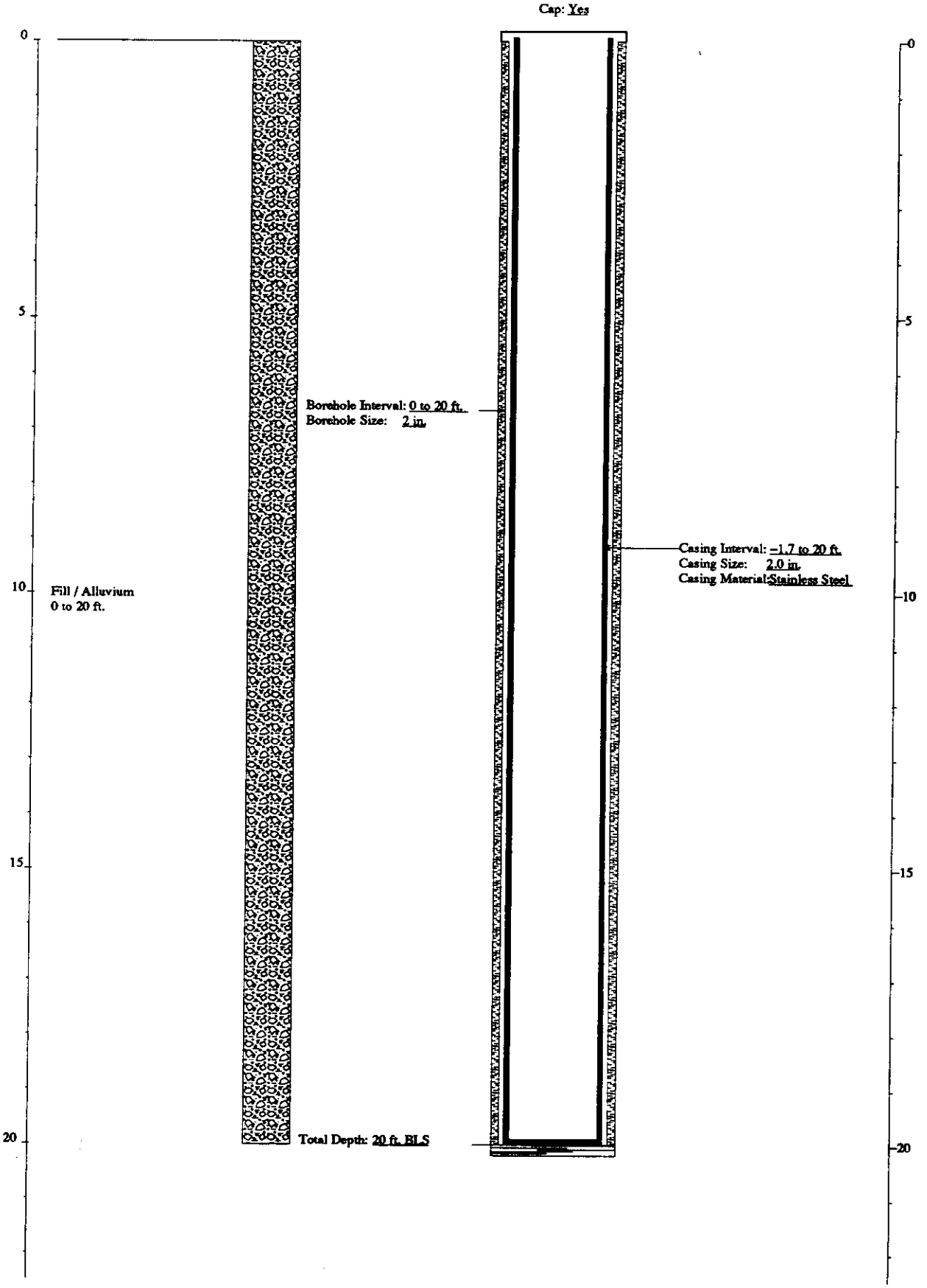
06/11/1993

Facility: CPP
Well Type: Scientific Instrumentation
Well Status: Active
Year Drilled: NF
Total Depth: 20

Easting: 297055.9
Northing: 695592.4
Longitude: 1125556.791
Latitude: 433422.158
Completion Depth: NA

Driller: NF
Geologist: NF
Drilling Method: Percussion Hammer
Drilling Fluid: NF
Land Surface: 4918.2

Water Level: NA
Water Level Date: NA
Water Level Access: NA



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: ICPP Well Name/No. 81-19

A. WELL/BORING USE

1) Year drilled: N.F.

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) RCRA Monitoring
( ) CERCLA Characterization
( ) USGS Observation
( ) No Documented Use
(X) Other :WINCO plans to use after their program plan is updated.

3) Constituents monitored currently: Radioactivity in the alluvium

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: WINCO / Ken Taylor

B. WELL/BORING INFORMATION

1) Construction Category
( ) Surface Percolation Well
( ) Gas Port
( ) Neutron Access
(X) Scientific Instrumentation
  (X) Radioactivity Monitoring
  ( ) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
(X) None
( ) Vapor Sampler
( ) Gypsum Block
( ) Heat Dissipation Sensor
( ) Lysimeter
( ) Psychrometer
( ) Salinity Probe
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 24 ft. Top of basalt = N.F. ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
( ) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes _ No X) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes _ No X)
4) Does the well contain a survey marker: (Yes _ No X)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No X N/A _)
   Explanation The monitoring port is located within the ICPP tank farm, which is a contaminated soil area. Also, the installation of the surface upgrade might puncture the tank farm liner which is located about 1-foot below ground.

6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _) Explanation The monitoring port is located in a secured area that is fenced and locked.

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes X No _)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes _ No X N/A Borehole size 2-inch Casing size 2-inch)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _ Drilling Method Percussion hammer)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Stainless steel [1]	2 I.D or O.D.?	0 - 24	N.F.	18	N.F.	N.F.

[1] The pipe has no perforations and is capped at the top and bottom.

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Seal Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
None	N/A	N/A	N/A

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3,3,1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No X N/A _) Explanation The monitoring port is completed in the alluvium. The base of the alluvium is commonly the first perched interval.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X N/A _) Explanation (Qualify data/specify perched intervals if applicable) See Section c above.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes _ No _ N/A X) Explanation Since the monitoring port is completed in permeable alluvium, it should not promote vertical fluid migration.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: ICPP | PAGE 6 of 7 | Well Name/No. 81-19

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Personal communication, Ken Taylor, WINCO (Oct. 1992 and Feb. 1993)

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: EG&G Observation/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- ( ) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- (X) Boring is not sealed, but remediation is unnecessary.
- (X) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The monitoring port, which was pounded into the alluvium with a percussion hammer, is constructed of 2-inch unperforated stainless steel pipe capped at the bottom and top. The port is used for checking radioactivity in the alluvium at the ICPP tank farm and is not a well as defined by the State of Idaho.

Deficiencies: None. The surface completion of the monitoring port was not upgraded because it is located in a contaminated soil area. Also, installation of the upgrade might puncture the tank farm liner which is located about 1-foot below ground.

Remediation: None

GEOLOGIC LOG

Well Name 81-19

Source: Construction Data

****

Interval (feet below surface)

Begin	End	Description
0	24	Alluvium

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date August 18, 1992

WellName: 81-19

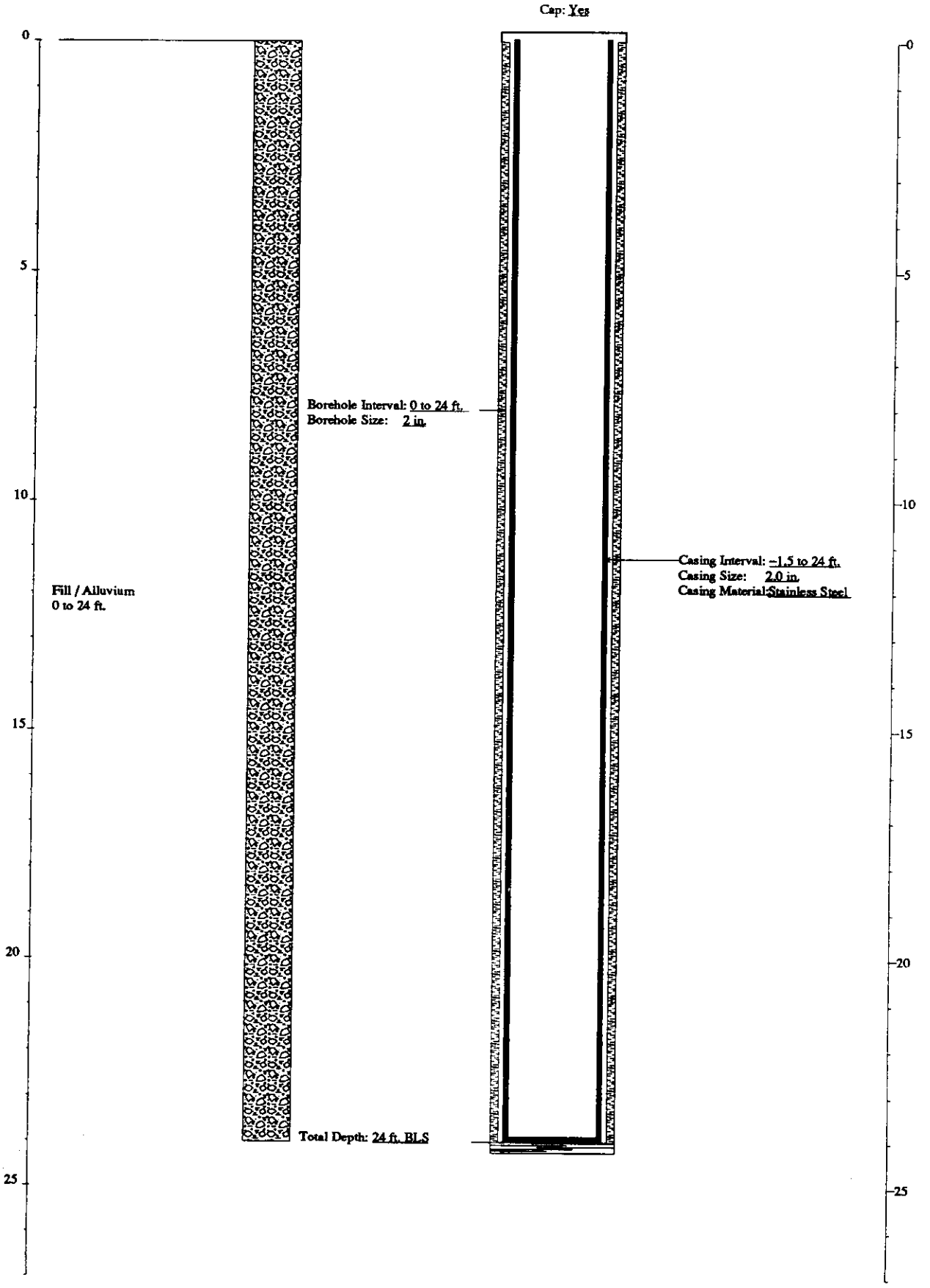
06/11/1993

Facility: CPP
Well Type: Scientific Instrumentation
Well Status: Active
Year Drilled: NF
Total Depth: 24

Easting: 297023.1
Northing: 695655.0
Longitude: 1125557.244
Latitude: 433422.773
Completion Depth: NF

Driller: NF
Geologist: NF
Drilling Method: Percussion Hammer
Drilling Fluid: NF
Land Surface: 4917.6

Water Level: NA
Water Level Date: NA
Water Level Access: NA



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: ICPP Well Name/No. 81-20

A. WELL/BORING USE

1) Year drilled: N.F.

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) RCRA Monitoring
( ) CERCLA Characterization
( ) USGS Observation
( ) No Documented Use
(X) Other :WINCO plans to use after their program plan is updated.

3) Constituents monitored currently: Radioactivity in the alluvium

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: WINCO / Ken Taylor

B. WELL/BORING INFORMATION

1) Construction Category
( ) Surface Percolation Well
( ) Gas Port
( ) Neutron Access
(X) Scientific Instrumentation
  (X) Radioactivity Monitoring
  ( ) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
(X) None
( ) Vapor Sampler
( ) Gypsum Block
( ) Heat Dissipation Sensor
( ) Lysimeter
( ) Psychrometer
( ) Salinity Probe
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 30 ft. Top of basalt = N.F. ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
( ) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes _ No X) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes _ No X)
4) Does the well contain a survey marker: (Yes _ No X)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No X N/A _)
   Explanation The monitoring port is located within the ICPP tank farm, which is a contaminated soil area. Also, the installation of the surface upgrade might puncture the tank farm liner which is located about 1-foot below ground.

6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _) Explanation The monitoring port is located in a secured area that is fenced and locked.

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2.1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes X No _)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes _ No X N/A Borehole size 2-inch Casing size 2-inch)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _ Drilling Method Percussion hammer)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Stainless steel [1]	2 I.D or O.D.?	0 - 30	N.F.	17	N.F.	N.F.

[1] The pipe has no perforations and is capped at the top and bottom.

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Seal Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
None	N/A	N/A	N/A

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3.3.1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No X N/A _) Explanation The monitoring port is completed in the alluvium. The base of the alluvium is commonly the first perched interval.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X N/A _) Explanation (Qualify data/specify perched intervals if applicable) See Section c above.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes _ No _ N/A X) Explanation Since the monitoring port is completed in permeable alluvium, it should not promote vertical fluid migration.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Personal communication, Ken Taylor, WINCO (Oct. 1992 and Feb. 1993)

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: EG&G Observation/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- ( ) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- (X) Boring is not sealed, but remediation is unnecessary.
- (X) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The monitoring port, which was pounded into the alluvium with a percussion hammer, is constructed of 2-inch unperforated stainless steel pipe capped at the bottom and top. The port is used for checking radioactivity in the alluvium at the ICPP tank farm and is not a well as defined by the State of Idaho.

Deficiencies: None. The surface completion of the monitoring port was not upgraded because it is located in a contaminated soil area. Also, installation of the upgrade might puncture the tank farm liner which is located about 1-foot below ground.

Remediation: None

GEOLOGIC LOG

Well Name 81-20

Source: Construction Data

****

Interval (feet below surface)

Begin	End	Description
0	30	Alluvium

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date August 18, 1992

WellName: 81–20

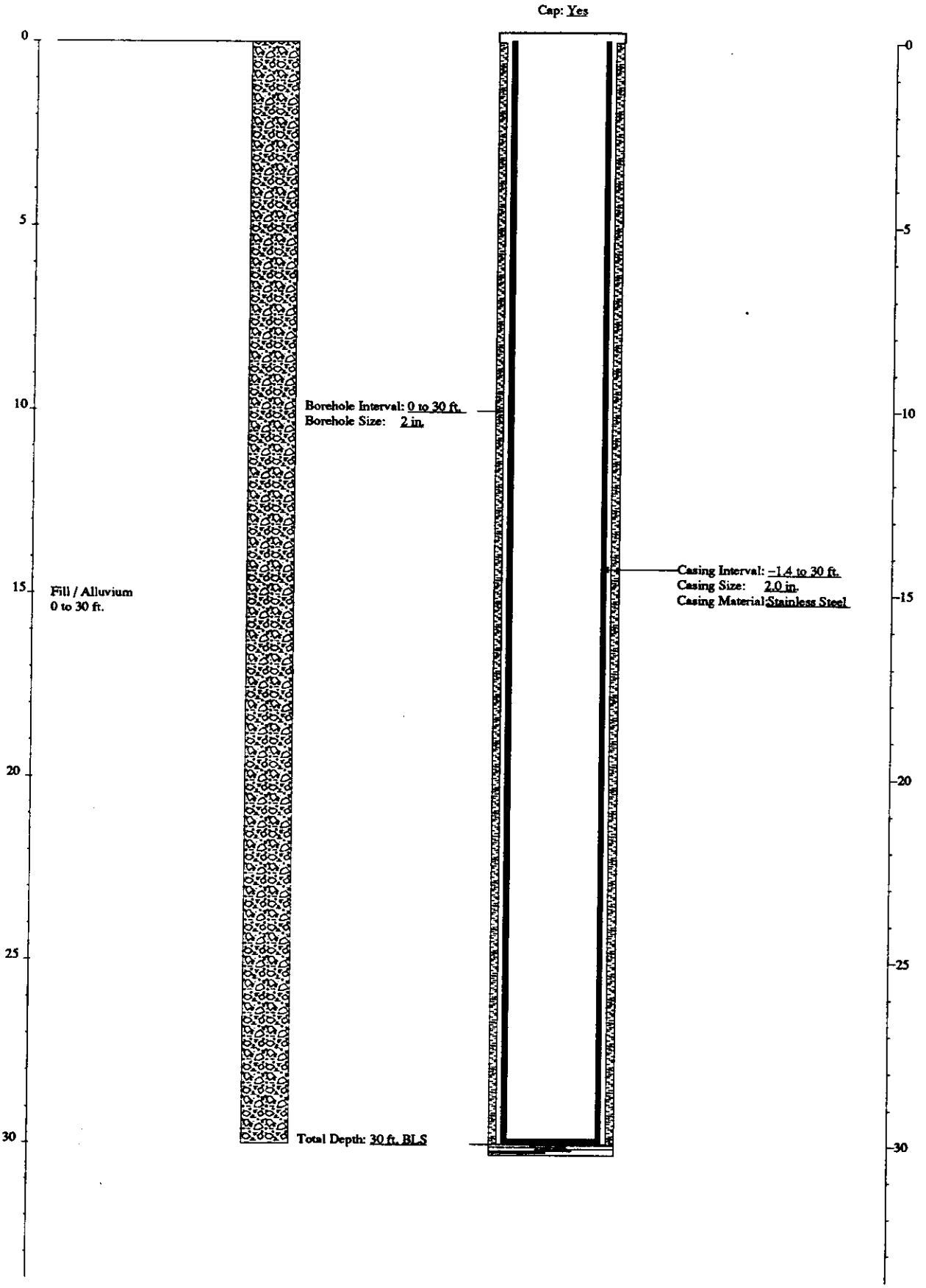
06/11/1993

Facility: CPP
Well Type: Scientific Instrumentation
Well Status: Active
Year Drilled: NF
Total Depth: 30

Easting: 297012.4
Northing: 695628.9
Longitude: 1125557.387
Latitude: 433422.514
Completion Depth: NA

Driller: NF
Geologist: NF
Drilling Method: Percussion Hammer
Drilling Fluid: NF
Land Surface: 4918.1

Water Level: NA
Water Level Date: NA
Water Level Access: NA



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: ICPP | PAGE 1 of 7 | Well Name/No. 81-21

A. WELL/BORING USE

1) Year drilled: N.F.

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) RCRA Monitoring
( ) CERCLA Characterization
( ) USGS Observation
( ) No Documented Use
(X) Other :WINCO plans to use after their program plan is updated.

3) Constituents monitored currently: Radioactivity in the alluvium

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: WINCO / Ken Taylor

B. WELL/BORING INFORMATION

1) Construction Category
( ) Surface Percolation Well
( ) Gas Port
( ) Neutron Access
(X) Scientific Instrumentation
  (X) Radioactivity Monitoring
  ( ) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
(X) None
( ) Vapor Sampler
( ) Gypsum Block
( ) Heat Dissipation Sensor
( ) Lysimeter
( ) Psychrometer
( ) Salinity Probe
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 15 ft. Top of basalt = N.F. ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
(X) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes _ No X) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes _ No X)
4) Does the well contain a survey marker: (Yes _ No X)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No X N/A _)
   Explanation The monitoring port is located within the ICPP tank farm, which is a contaminated soil area. Also, the installation of the surface upgrade might puncture the tank farm liner which is located about 1-foot below ground.

6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _) Explanation The monitoring port is located in a secured area that is fenced and locked.

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes _ No X)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes _ No X N/A Borehole size 2-inch Casing size 2-inch)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _ Drilling Method Percussion hammer)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Stainless steel [1]	2 I.D or O.D.?	0 - 15	N.F.	37	N.F.	N.F.

[1] The pipe has no perforations and is capped at the top and bottom.

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Seal Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
None	N/A	N/A	N/A

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3.3.1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No X N/A _) Explanation The monitoring port is completed in the alluvium. The base of the alluvium is commonly the first perched interval.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X N/A _) Explanation (Qualify data/specify perched intervals if applicable) See Section c above.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes _ No _ N/A X) Explanation Since the monitoring port is completed in permeable alluvium, it should not promote vertical fluid migration.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Personal communication, Ken Taylor, WINCO (Oct. 1992 and Feb. 1993)

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: EG&G Observation/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- ( ) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- (X) Boring is not sealed, but remediation is unnecessary.
- (X) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The monitoring port, which was pounded into the alluvium with a percussion hammer, is constructed of 2-inch unperforated stainless steel pipe capped at the bottom and top. The port is used for checking radioactivity in the alluvium at the ICPP tank farm and is not a well as defined by the State of Idaho.

Deficiencies: None. The surface completion of the monitoring port was not upgraded because it is located in a contaminated soil area. Also, installation of the upgrade might puncture the tank farm liner which is located about 1-foot below ground.

Remediation: None

GEOLOGIC LOG

Well Name 81-21

Source: Construction Data

****

Interval (feet below surface)

Begin	End	Description
0	15	Alluvium

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date August 18, 1992

WellName: 81-21

06/11/1993

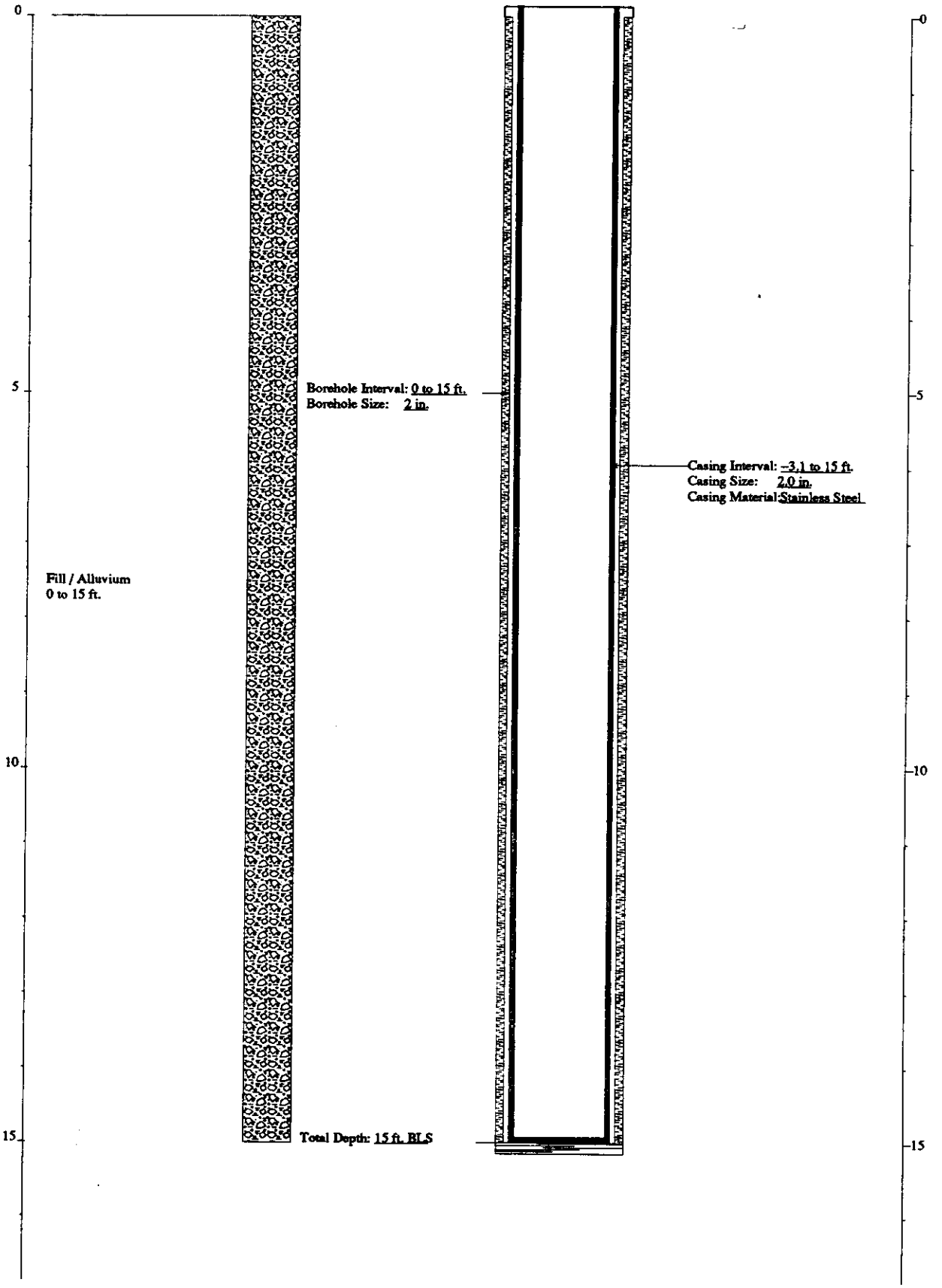
Facility: CPP
Well Type: Scientific Instrumentation
Well Status: Active
Year Drilled: NF
Total Depth: 15

Easting: 297032.0
Northing: 695480.7
Longitude: 1125557.102
Latitude: 433421.052
Completion Depth: NA

Driller: NF
Geologist: NF
Drilling Method: Percussion Hammer
Drilling Fluid: NF
Land Surface: 4920.3

Water Level: NA
Water Level Date: NA
Water Level Access: NA

Cap: Yes



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: ICPP Well Name/No. 81-22

A. WELL/BORING USE

1) Year drilled: N.F.

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) RCRA Monitoring
( ) CERCLA Characterization
( ) USGS Observation
( ) No Documented Use
(X) Other :WINCO plans to use after their program plan is updated.

3) Constituents monitored currently: Radioactivity in the alluvium

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: WINCO / Ken Taylor

B. WELL/BORING INFORMATION

1) Construction Category
( ) Surface Percolation Well
( ) Gas Port
( ) Neutron Access
(X) Scientific Instrumentation
  (X) Radioactivity Monitoring
  ( ) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
(X) None
( ) Vapor Sampler
( ) Gypsum Block
( ) Heat Dissipation Sensor
( ) Lysimeter
( ) Psychrometer
( ) Salinity Probe
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 25 ft. Top of basalt = N.F. ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
( ) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes _ No X) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes _ No X)
4) Does the well contain a survey marker: (Yes _ No X)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No X N/A _)
   Explanation The monitoring port is located within the ICPP tank farm, which is a contaminated soil area. Also, the installation of the surface upgrade might puncture the tank farm liner which is located about 1-foot below ground.

6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _) Explanation The monitoring port is located in a secured area that is fenced and locked.

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes X No _)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes _ No X N/A Borehole size 2-inch Casing size 2-inch)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _ Drilling Method Percussion hammer)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Stainless steel [1]	2 I.D or O.D.?	0 - 25	N.F.	25	N.F.	N.F.

[1] The pipe has no perforations and is capped at the top and bottom.

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Seal Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
None	N/A	N/A	N/A

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3,3,1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No X N/A _) Explanation The monitoring port is completed in the alluvium. The base of the alluvium is commonly the first perched interval.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X N/A _) Explanation (Qualify data/specify perched intervals if applicable) See Section c above.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes _ No _ N/A X) Explanation Since the monitoring port is completed in permeable alluvium, it should not promote vertical fluid migration.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Personal communication, Ken Taylor, WINCO (Oct. 1992 and Feb. 1993)

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: EG&G Observation/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- ( ) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- (X) Boring is not sealed, but remediation is unnecessary.
- (X) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The monitoring port, which was pounded into the alluvium with a percussion hammer, is constructed of 2-inch unperforated stainless steel pipe capped at the bottom and top. The port is used for checking radioactivity in the alluvium at the ICPP tank farm and is not a well as defined by the State of Idaho.

Deficiencies: None. The surface completion of the monitoring port was not upgraded because it is located in a contaminated soil area. Also, installation of the upgrade might puncture the tank farm liner which is located about 1-foot below ground.

Remediation: None

GEOLOGIC LOG

Well Name 81-22

Source: Construction Data

****

Interval (feet below surface)

Begin	End	Description
0	25	Alluvium

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date August 18, 1992

WellName: 81-22

06/11/1993

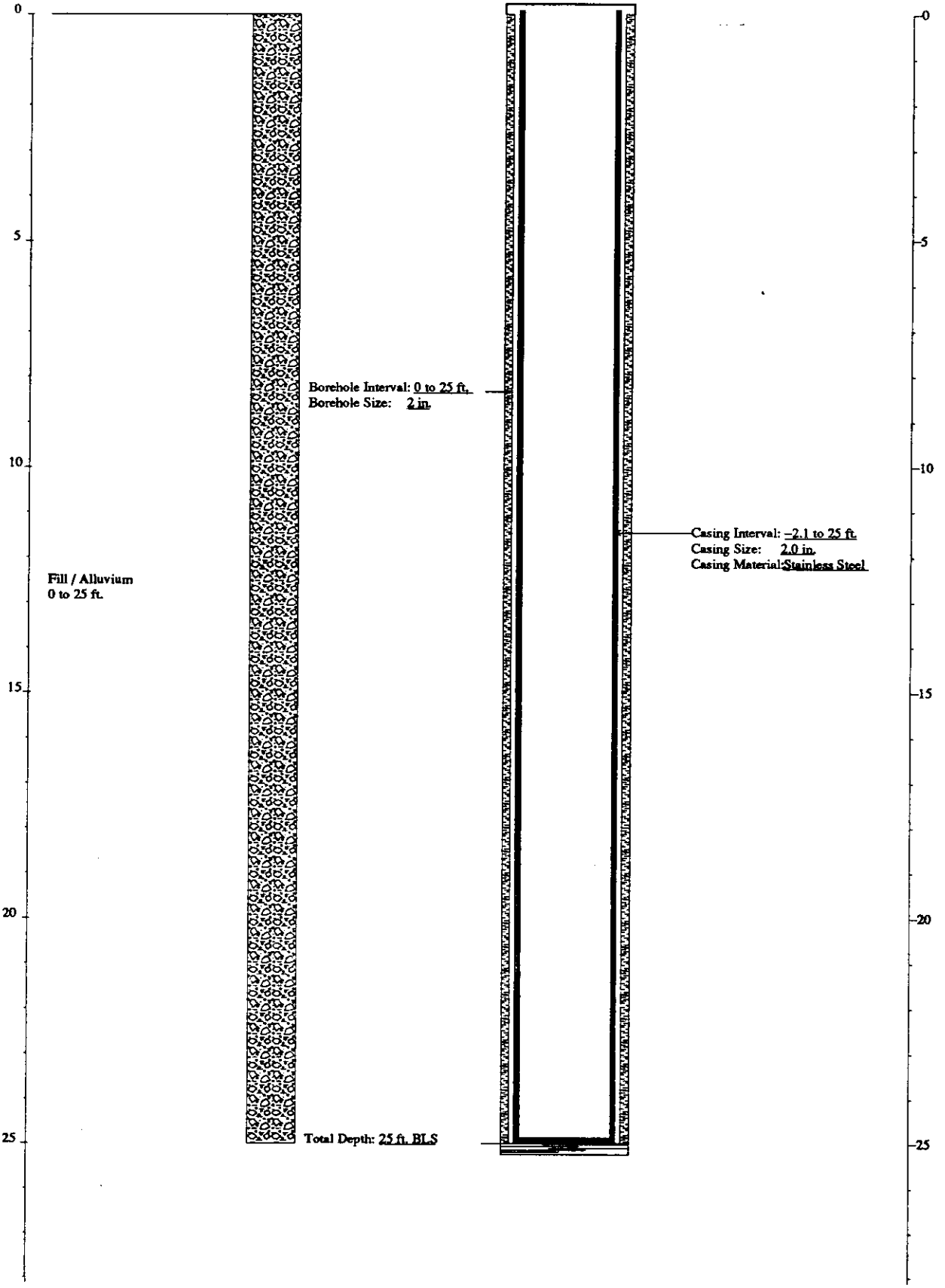
Facility: CPP
Well Type: Scientific Instrumentation
Well Status: Active
Year Drilled: NF
Total Depth: 25

Easting: 297069.7
Northing: 695621.6
Longitude: 1125556.607
Latitude: 433422.447
Completion Depth: NA

Driller: NF
Geologist: NF
Drilling Method: Percussion Hammer
Drilling Fluid: NF
Land Surface: 4918.5

Water Level: NA
Water Level Date: NA
Water Level Access: NA

Cap: Yes



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: ICPP Well Name/No. 81-23

A. WELL/BORING USE

1) Year drilled: N.F.

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) RCRA Monitoring
( ) CERCLA Characterization
( ) USGS Observation
( ) No Documented Use
(X) Other :WINCO plans to use after their program plan is updated.

3) Constituents monitored currently: Radioactivity in the alluvium

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: WINCO / Ken Taylor

B. WELL/BORING INFORMATION

1) Construction Category
( ) Surface Percolation Well
( ) Gas Port
( ) Neutron Access
(X) Scientific Instrumentation
  (X) Radioactivity Monitoring
  ( ) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
(X) None
( ) Vapor Sampler
( ) Gypsum Block
( ) Heat Dissipation Sensor
( ) Lysimeter
( ) Psychrometer
( ) Salinity Probe
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 20 ft. Top of basalt = N.F. ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
( ) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes _ No X) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes _ No X)
4) Does the well contain a survey marker: (Yes _ No X)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No X N/A _)
   Explanation The monitoring port is located within the ICPP tank farm, which is a contaminated soil area. Also, the installation of the surface upgrade might puncture the tank farm liner which is located about 1-foot below ground.

6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _) Explanation The monitoring port is located in a secured area that is fenced and locked.

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes X No _)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes _ No X N/A Borehole size 2-inch Casing size 2-inch)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _ Drilling Method Percussion hammer)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Stainless steel [1]	2 I.D or O.D.?	0 - 20	N.F.	19	N.F.	N.F.

[1] The pipe has no perforations and is capped at the top and bottom.

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Seal Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
None	N/A	N/A	N/A

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3,3,1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No X N/A _) Explanation The monitoring port is completed in the alluvium. The base of the alluvium is commonly the first perched interval.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X N/A _) Explanation (Qualify data/specify perched intervals if applicable) See Section c above.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes _ No _ N/A X) Explanation Since the monitoring port is completed in permeable alluvium, it should not promote vertical fluid migration.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Personal communication, Ken Taylor, WINCO (Oct. 1992 and Feb. 1993)

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: EG&G Observation/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- ( ) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- (X) Boring is not sealed, but remediation is unnecessary.
- (X) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The monitoring port, which was pounded into the alluvium with a percussion hammer, is constructed of 2-inch unperforated stainless steel pipe capped at the bottom and top. The port is used for checking radioactivity in the alluvium at the ICPP tank farm and is not a well as defined by the State of Idaho.

Deficiencies: None. The surface completion of the monitoring port was not upgraded because it is located in a contaminated soil area. Also, installation of the upgrade might puncture the tank farm liner which is located about 1-foot below ground.

Remediation: None

GEOLOGIC LOG

Well Name 81-23

Source: Construction Data

****

Interval (feet below surface)

Begin	End	Description
0	20	Alluvium

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date August 18, 1992

WellName: 81–23

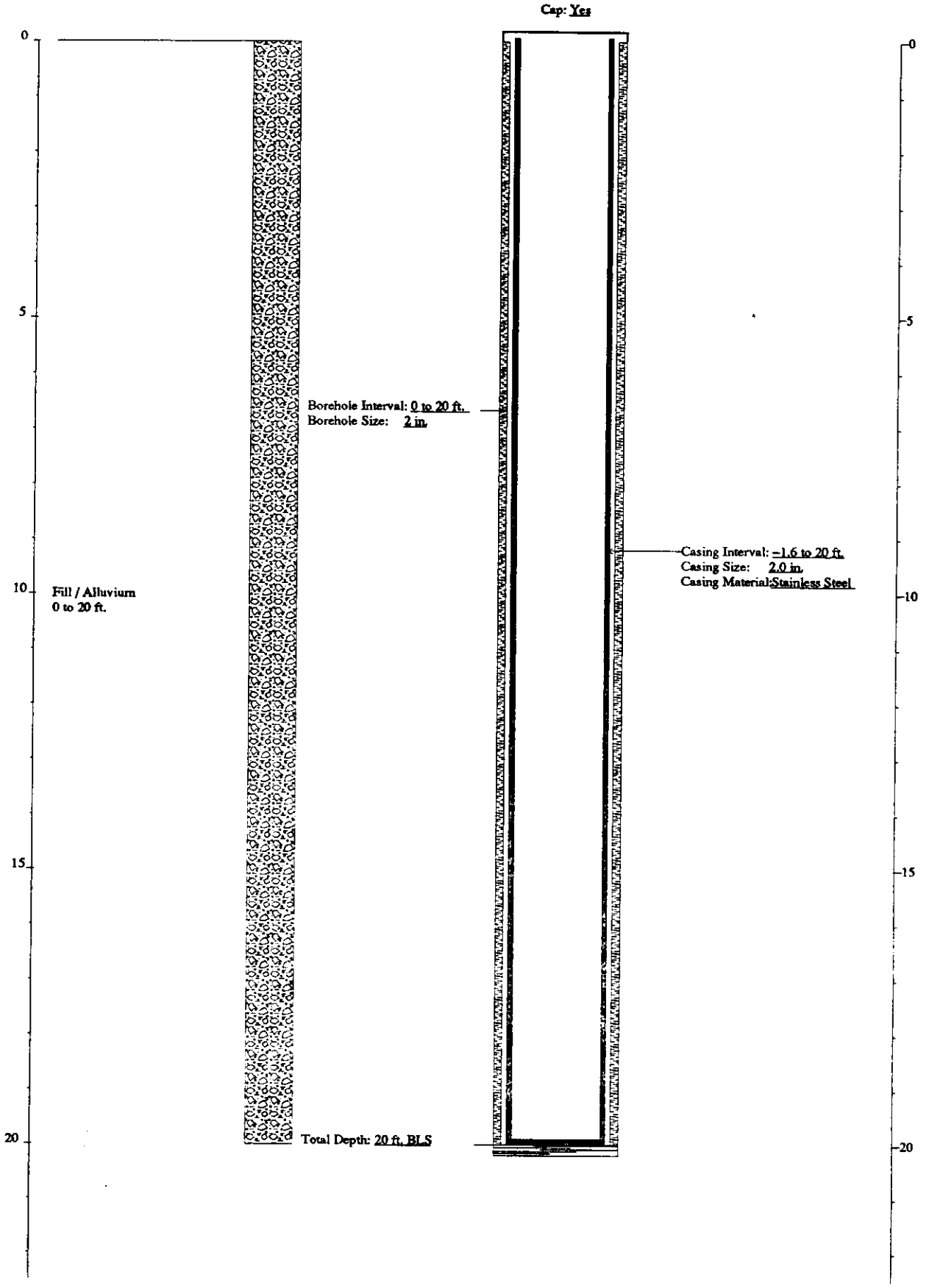
06/25/1993

Facility: CPP
Well Type: Scientific Instrumentation
Well Status: Active
Year Drilled: NF
Total Depth: 20

Easting: 296955.4
Northing: 695605.5
Longitude: 1125558.158
Latitude: 433422.278
Completion Depth: NF

Driller: NF
Geologist: NF
Drilling Method: Percussion Hammer
Drilling Fluid: NF
Land Surface: 4918.7

Water Level: NA
Water Level Date: NA
Water Level Access: NA



FITNESS-FOR-USE CHECKLIST FOR MISCELLANEOUS WELLS/BORINGS

LOCATION: ICPP Well Name/No. 81-24

A. WELL/BORING USE

1) Year drilled: N.F.

2) Current use for well/boring:
( ) DOE 5400.1 Monitoring
( ) RCRA Monitoring
( ) CERCLA Characterization
( ) USGS Observation
( ) No Documented Use
(X) Other :WINCO plans to use after their program plan is updated.

3) Constituents monitored currently: Radioactivity in the alluvium

4) Water level monitored: (Yes _ No _ N/A X)

5) Is the well/boring used for USGS observation: (Yes _ No X)
(The sampling protocols for the USGS are "Techniques of Water Resources Investigation" and "National Handbook of Recommended Methods for Water-Data Acquisition".)

6) Is the well/boring used or proposed for compliance/detection monitoring: (Yes _ No X) If yes, specify regulating program plan: _

7) Responsible organization/contact person: WINCO / Ken Taylor

B. WELL/BORING INFORMATION

1) Construction Category
( ) Surface Percolation Well
( ) Gas Port
( ) Neutron Access
(X) Scientific Instrumentation
  (X) Radioactivity Monitoring
  ( ) Soil Moisture/Vapor Port
( ) Other :_

2) Instrumentation in borehole
(X) None
( ) Vapor Sampler
( ) Gypsum Block
( ) Heat Dissipation Sensor
( ) Lysimeter
( ) Psychrometer
( ) Salinity Probe
( ) Tensiometer

3) Is well/boring completed in the alluvium: (Yes X No _)
Total depth = 15 ft. Top of basalt = N.F. ft.

C. IDAHO STATE WELL DEFINITION

Idaho Department of Water Resources Definition of a Well - A well means any test well, monitoring well, cathodic protection well, or observation well 18 feet or deeper in vertical depth below land surface that is constructed to evaluate the groundwater resource or to evaluate contamination of the resource.

Does borehole meet Idaho Department of Water Resources definition of a well:

( ) Yes, the boring is a well as defined by the State of Idaho.
(X) No, the boring is less than 18 feet deep.
(X) No, the boring was installed to detect surface releases or for scientific investigation and its construction is not readily comparable to Idaho State regulations.

If the boring is a well as defined above, it will be evaluated to INEL Best Management Practices and to the Idaho State well construction regulations. If the boring is not a well, section E will be filled out to the extent possible in order to verify the above conclusions and to determine whether or not the borehole provides a preferential pathway for fluid migration.

D. WELL SHOULD COMPLY WITH INEL BEST MANAGEMENT PRACTICES (BMP) REGARDING SURFACE COMPLETION

Surface completion data is documented in "Idaho National Engineering Laboratory Well Catalog" (DOE/ID-10380). The elevation and coordinates of the measuring point and brass marker for appropriate INEL wells will be resurveyed starting in the summer of 1992 as described in "INEL Well Inspection and Surveying Project" (EGG-WM-9890).

1) Well located by field inspection: (Yes X No _)
2) Protective posts: (Yes _ No X) or Fence posts: (Yes _ No X)
3) Concrete pad/apron present: (Yes _ No X)
4) Does the well contain a survey marker: (Yes _ No X)
5) If no to 2, 3 or 4, is the well planned for upgrade: (Yes _ No X N/A _)
   Explanation The monitoring port is located within the ICPP tank farm, which is a contaminated soil area. Also, the installation of the surface upgrade might puncture the tank farm liner which is located about 1-foot below ground.

6) Based on location of well, is existing or planned surface completion adequate: (Yes X No _) Explanation The monitoring port is located in a secured area that is fenced and locked.

E. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "WELL CONSTRUCTION STANDARDS-RULES and REGULATIONS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch, thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port with a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ N/A _)
b) Access to measure water levels: (Yes _ No _ N/A X)

2) Casing

State of Idaho Reg. 3,3,2,1. Steel surface casing shall be installed to a minimum depth of 18 feet below land surface with a borehole size 2 inches greater than the O.D. of the casing.

a) If well is completed in surficial sediments, does the casing extend to a minimum depth of 18 feet: (Yes _ No X)

b) If well is completed in surficial sediments, is the borehole size at least 2 inches greater than the O.D. of the casing: (Yes _ No X N/A Borehole size 2-inch Casing size 2-inch)

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

c) If well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes _ No _ N/A X)

d) If well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to the top of bedrock: (Yes _ No _ N/A X Borehole size _ Casing size _ Drilling Method Percussion hammer)

e) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho Reg. 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-couple joints which shall be water tight or by other means approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 or greater		.250

Casing Type	Casing Diameter (inches)	Casing Interval (feet)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/ State Regs. on Casing Thickness
Stainless steel [1]	2 I.D or O.D.?	0 - 15	N.F.	17	N.F.	N.F.

[1] The pipe has no perforations and is capped at the top and bottom.

3) Seal

State of Idaho Reg. 3,3,1 and 3,3,2,1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters. If the well is completed in alluvium and greater than 18 feet in total depth, a seal to 18 feet is required.

Annular Seal Material	Interval (feet)	Mixture/Volumes	Material Approved by State of Idaho Regs.
None	N/A	N/A	N/A

a) Does the surface seal extend at a minimum from ground surface to 18 feet below land surface (if the well is completed in alluvium) or to the top of bedrock (if the well is completed in bedrock): (Yes _ No _ N/A X Uncertain/Not documented _)

b) If the seal is documented, how was it emplaced: (N/A X Uncertain/Not documented _) Explanation _

State of Idaho Reg. 3,3,1. The casing seal shall prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams and spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes _ No X N/A _) Explanation The monitoring port is completed in the alluvium. The base of the alluvium is commonly the first perched interval.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes _ No X N/A _) Explanation (Qualify data/specify perched intervals if applicable) See Section c above.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes _ No _ N/A X) Explanation Since the monitoring port is completed in permeable alluvium, it should not promote vertical fluid migration.

4) Gravel Pack. Does the well contain a gravel pack: (Yes _ No X) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes _ No _ N/A X)

F. IS THE WELL USED FOR RCRA MONITORING (Yes _ No X) OR IS THE WELL TO BE EVALUATED TO RCRA GUIDANCE AS A BEST MANAGEMENT PRACTICE (Yes _ No X).

G. THE PRIMARY SOURCE OF INFORMATION FOR THIS CHECKLIST IS IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY OR AS REFERENCED. OTHER SOURCES: Personal communication, Ken Taylor, WINCO (Oct. 1992 and Feb. 1993)

N.F. - Not Found/No Documentation
N/A - Not Applicable

H. WELL FITNESS DETERMINATION

Intended Use/Applicable Regulations: EG&G Observation/State Regulations and INEL Best Management Practices

(X) Boring is not a well as defined by the State of Idaho.
- ( ) Boring is adequately sealed and its surface completion complies with INEL Best Management Practices.
- (X) Boring is not sealed, but remediation is unnecessary.
- (X) The boring's surface completion does not comply with INEL Best Management Practices, but remediation is unnecessary.
- ( ) Boring should be remediated.

( ) Boring is a well as defined by the State of Idaho.
- ( ) Well complies with state regulations and is acceptable for intended use.
- ( ) Well complies with state regulations except for minor construction details and is acceptable for intended use.
- ( ) Well does not meet state regulations, a variance should be obtained. If variance is not obtained, remediation is required to comply with regulations.
- ( ) Well does not meet regulations and intended use, it should be remediated.
- ( ) Abandonment should be considered. Well is unneeded or cannot be remediated.

Well Description: The monitoring port, which was pounded into the alluvium with a percussion hammer, is constructed of 2-inch unperforated stainless steel pipe capped at the bottom and top. The port is used for checking radioactivity in the alluvium at the ICPP tank farm and is not a well as defined by the State of Idaho.

Deficiencies: None. The surface completion of the monitoring port was not upgraded because it is located in a contaminated soil area. Also, installation of the upgrade might puncture the tank farm liner which is located about 1-foot below ground.

Remediation: None

GEOLOGIC LOG

Well Name 81-24

Source: Construction Data

****

Interval (feet below surface)

Begin	End	Description
0	15	Alluvium

COMPILED BY/ORGANIZATION: T.J. Clement / GAI Date August 18, 1992

WellName: 81-24

06/11/1993

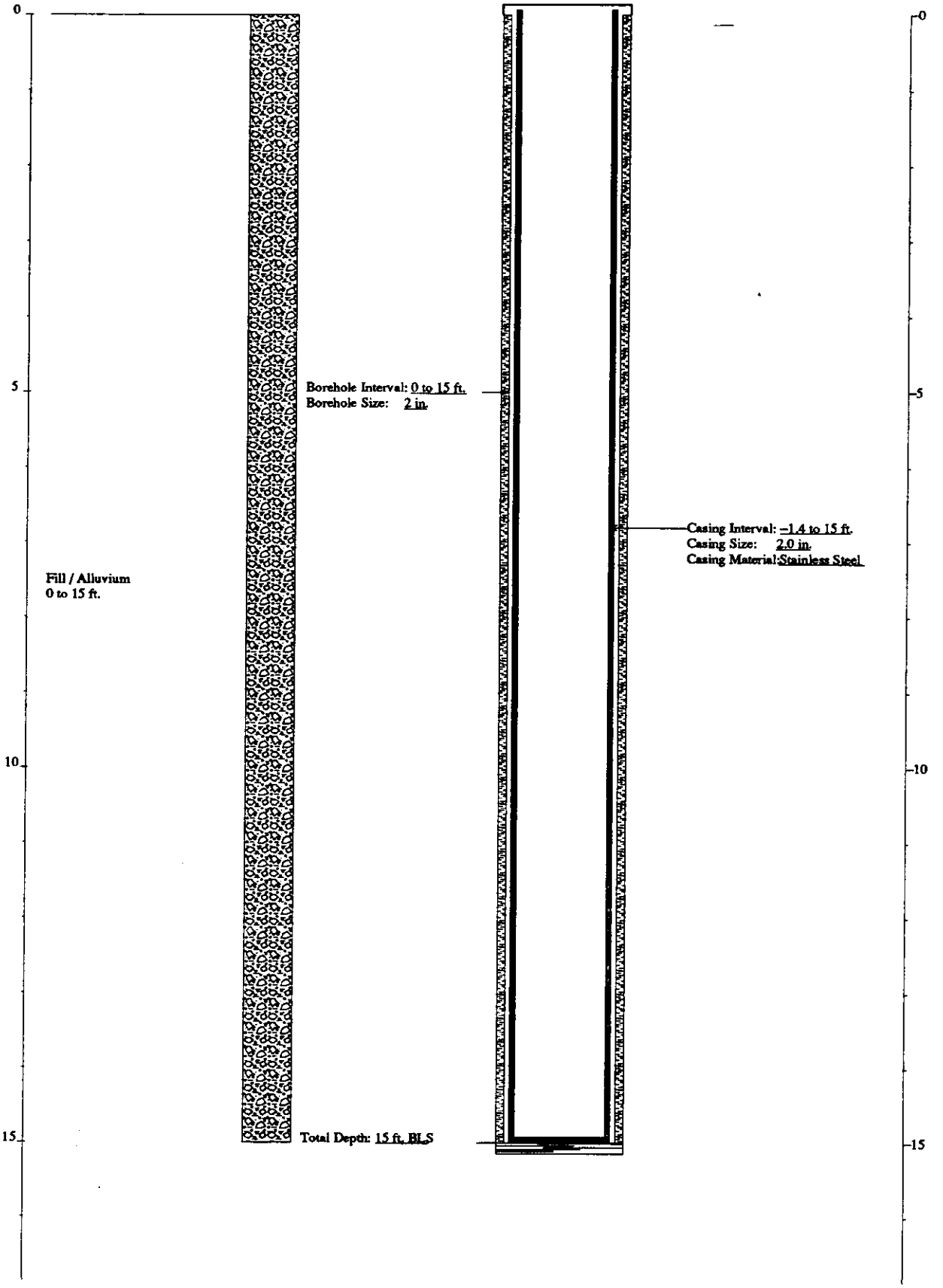
Facility: CPP
Well Type: Scientific Instrumentation
Well Status: Active
Year Drilled: NF
Total Depth: 15

Easting: 297106.8
Northing: 695748.3
Longitude: 1125556.119
Latitude: 433423.702
Completion Depth: NA

Driller: NF
Geologist: NF
Drilling Method: Percussion Hammer
Drilling Fluid: NF
Land Surface: 4914.6

Water Level: NF
Water Level Date: NF
Water Level Access: NA

Cap: Yes



FITNESS-FOR-USE CHECKLIST POTABLE WATER/PRODUCTION WELL

LOCATION: ICPP (Building CPP 611) | PAGE 1 of 9 | Well Name/No. CPP-01

A. WELL USE

1) Year well was drilled: 1950

2) Current use for well:
( ) Potable water production well
(X) Raw water production well, (Back-up potable water production well)

3) Well is: (X) Active ( ) Inactive

4) Program Plan: WINCO Comprehensive Drinking Water Monitoring Plan

5) Responsible Organization/Contact Person: WINCO, Leon Pruet

6) Has a sanitary survey been performed on the drinking water system by the Idaho Department of Health and Welfare: (Yes X No _ Insufficient Data NA _) Date performed 12/6/90 Deficiencies reported relevant to scope of Fitness for Use Checklist / Corrective actions taken: There were no deficiencies reported in the State sanitary survey relevant to this Fitness for Use Checklist.

The following evaluation pertains to well construction and does not address the design of the distribution system outside of well house or water quality issues.

B. WELL MUST COMPLY WITH IDAHO DEPARTMENT OF HEALTH AND WELFARE RULES AND REGULATIONS, TITLE 1, CHAPTER 8, "IDAHO REGULATIONS FOR PUBLIC DRINKING WATER SYSTEMS", SPECIFICALLY SUBSECTION 01.08550 "STANDARDS FOR PUBLIC DRINKING WATER SYSTEMS." WELL MUST ALSO COMPLY WITH IDAHO DEPARTMENT OF WATER RESOURCES "RULES AND REGULATIONS WELL CONSTRUCTION STANDARDS" (JANUARY 1989). THESE CRITERIA WILL BE EVALUATED IN SECTION C.

In addition, the Department of Health and Welfare has adopted "Recommended Standards for Water Works" (Albany, New York, 1992). The criteria from this report not included in "State Regulations for Well Construction" will be discussed in Section D.

1) Well shall not be located in a pit. Is this criterion met:
(Yes X No _ Insufficient Data _ N/A _)

2) Is a well house provided for this well: (Yes X No _ Insufficient Data _ N/A _) (If no, proceed to section 3)

a) Well house shall be provided with a locking door. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

b) Well house shall be protected from flooding and adequately drained. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

c) Floor drains shall not be connected to sewers, storm drains, or any other source of contamination. Is this criterion met: (Yes _ No _ Insufficient Data _ N/A X) Explanation: The well house is not equipped with a floor drain.

d) Sumps for well house floor drains shall not be within 30 feet of the well. Is this criterion met: (Yes _ No _ Insufficient Data _ N/A X) Explanation: N.R.

e) Well house shall not be used to store toxic or hazardous materials. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

3) Is the well constructed with a pitless adapter or pitless unit: (Yes _ No X Insufficient Data _ N/A _) (If no, proceed to Section 4)

a) The unit shall be the type approved by the National Sanitation Division or Pitless Adaptor Division of the Water Systems Council. Is this criteria met: (Yes _ No _ Insufficient Data _ N/A _) Explanation: _

b) The unit shall be designed to be watertight including the well cap and casing extension. Is this criterion met: (Yes _ No _ Insufficient Data _ N/A _) Explanation: _

c) The unit shall be tested for leaks prior to being put into service. Is this criterion met: (Yes _ No _ Insufficient Data _ N/A _) Explanation: _

4) Well must not be located within 50 or 100 feet of any potential source of contamination and no closer to specific sources of contamination than set forth below.

   a) The well must not be within 50 feet of sewer lines. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

   b) The well must not be within 50 feet of canals, streams, ditches, lakes, ponds and tanks used to store non-potable substances. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

   c) The well must not be within 100 feet of a drainfield or a drainfield replacement area. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

   d) Is the well within 50 feet of contaminated perched water bodies: (Yes _ No _ Insufficient Data X N/A _) Explanation: See C.3,d.

5) Well casing shall extend a minimum of 12 inches above the ground surface and 6 inches above the well house floor. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

6) Well shall be vented with the open end screened and terminated downward at least 18 inches above the well house floor or ground surface. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

7) Well shall be equipped with the necessary valves and appurtenances to allow the well to be pumped to waste. Is this criterion met: (Yes X No Insufficient Data _ N/A _) Explanation: The well is plumbed to pump to waste via a screened air gap.

8) A flow meter and sample tap shall be installed on discharge line. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

9) A pressure gauge shall be provided at all installations. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

10) Well shall be cased and sealed in such a manner that surface water can not enter the well and a watertight seal shall be provided at the top of the casing. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _)
Explanation: N.R.

C. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "RULES AND REGULATIONS WELL CONSTRUCTION STANDARDS" (1989)

1) Surface Completion

State of Idaho Reg. 3.2.1. The top of the casing shall be completely covered with a 1/4-inch thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3.11. The well shall be equipped with an access port which has a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ Insufficient Data _)
b) Access to measure water levels: (Yes X No _ Insufficient Data _)

2) Casing

State of Idaho Reg. 3.3.4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

a) If the well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes X No _ Insufficient Data _ N/A _) Explanation: The alluvium/basalt interface is at approximately 38 ft. bls., and 16-inch casing is installed from 0.8 ft. bls. through 585.5 ft. bls.

b) If the well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to top of bedrock: (Yes X No _ Borehole size inches 20 Casing size inches 16)

c) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho 3.2.1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-coupled joints which shall be watertight or be approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3.2.2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480 which is a combination of Idaho State regulations for casing less than 6 inches in diameter and "Recommended Standards for Water

Works" (1992) for casings greater than 26 inches in diameter.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 I.D.	6.625	.280
8	8.628	.322
10 I.D.	0.750	.365
12	12.750	.375
14	14.000	.375
16	16.000	.375
18	18.000	.375
20	20.000	.375
22	22.000	.500
24	24.000	.500
26	26.000	.500
28	28.000	.500
30	30.000	.500
32	32.000	.500
34	34.000	.500

Casing Type	Casing Diameter (inches)	Casing Interval (feet bls)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/State Regs. on Casing Thickness
Steel [1]	16	-0.82 - 585.5	N.F.	10	N.F.	N/A
[1] Casing perforated from 459.9 to 485.9 and 527.4 to 576.8 feet bls.						

3) Seal

State of Idaho Reg. 3.3.1. and 3.3.2.1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters.

Annular Fill Material	Interval (feet bls)	Mixture/Volumes	Material Approved by State of Idaho Regs.
Gravel	0 - 425	N.F.	No
Cement	425 - 432	N.F.	Yes
Gravel Pack	432 - 580	N.F.	Yes
Cement	580 - 585.5	N.F.	Yes

a) Does the surface seal extend at a minimum from ground surface to the top of bedrock: (Yes _ No X Insufficient Data _ N/A _) Explanation: The gravel used as backfill from 0 - 425 ft. bls. does not constitute an adequate or acceptable surface seal.

b) If the seal is documented, how was it emplaced (provide intervals if there was more than one grouting event):
(Yes _ No _ Insufficient Data _ N/A X) Explanation: N.R.

State of Idaho Reg. 3.3.1. The casing seal is to prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams, spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes X No _Insufficient Data _ N/A Explanation: The Big Lost River drainage is approximately 500 ft. northwest of this well's location.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes X No _ Insufficient Data _ N/A _) Explanation (Qualify data/specify perched intervals if applicable): The geophysical logs are inconclusive and do not correlate sufficiently to make an accurate determination whether or not saturated zones were present at the time the logs were taken (8/25/82). However, there is a long history of perched water at ICPP. Sources and locations of all the perched zones are not well defined. It is likely that perched water associated with the Big Lost River will approach CPP 01, when the river has been flowing for extended periods of time. For comparison, the perched water body associated with the ICPP percolation ponds extend well over 800 ft. from the source and at TRA USGS Well 78 monitors a perched water body associated with the Big Lost River over

200 ft. away. CPP 01 is approximately 500 ft. from the Big Lost River. Additionally at ICPP there is a known perched water body monitored by wells CPP 33-04 and CPP 33-03 600 ft. to the southeast, the northern extent of which is not known.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes _ No X Insufficient Data _ N/A _) Explanation: The gravel used as backfill in the annular space does not provide adequate protection to prevent groundwater from entering and moving within the annular space.

4) Gravel Pack. Does the well contain a gravel pack: (Yes X No _) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes X No _ Insufficient Data N/A _) Explanation: The cement gravel pack seal (shown in the CWS file Plate 14 diagram) at 425 - 430 ft. bls. should prevent groundwater from entering the gravel pack through the annulus from above.

D. WELL MUST COMPLY WITH "RECOMMENDED STANDARDS FOR WATER WORKS" (1992), A REPORT OF THE COMMITTEE OF THE GREAT LAKES-UPPER MISSISSIPPI RIVER BOARD OF STATE SANITARY ENGINEERS.

1) Does the well contain a packer that is in contact with the groundwater supply interval: (Yes _ No X Insufficient Data _ N/A _). If yes, is the packer comprised of materials that are toxic, will impair taste or odor, or facilitate bacterial contamination of the well water: (Yes _ No _ Packer Type _ N/A X)

2) Screen

a) Does the well contain perforated casing or a screen: (Yes X No Insufficient Data _ N/A _) If yes, the perforated screen or casing must be installed so that the pumping water level remains above it under operating conditions. The following determination was made from the available production water level data which will vary with changes in the static water levels (water table elevation); therefore, the following determination may not be valid under all conditions. Is the criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: The reported production water level is approximately 451 ft. bls., the perforated casing is installed starting at 460 ft. bls., approximately 10 ft. below the production water level.

b) Is the perforated casing or screen constructed of material resistant to damage by chemical action from the groundwater or cleaning operations: Material Type Steel Explanation: Steel is an acceptable well construction material for casing or screen in a non-acidic environment such as the Snake River Plain aquifer, as is demonstrated in EG&G report EGG-ER-8496.

3) If the casing is constructed of nonferrous material, it must be resistant to the corrosiveness of the water. Is this criterion met:
(Yes _ No _ Insufficient Data _ N/A X)

4) Was the well adequately developed to remove native silts and clays, drilling mud or the finer fraction of the gravel pack: (Yes X No _ Insufficient Data N/A _) Explanation: The well was adequately developed during a pump test that took place from March 31 through April 1, 1951.

E. **THE PRIMARY SOURCE FOR THE WELL EVALUATION IS THE IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY. OTHER SOURCES:** Westinghouse Idaho Nuclear Company Inc. Draft Final, Groundwater Monitoring Plan for the Idaho Chemical Processing Plant, 1992. Robertson, J.B., R. Sehoen, J.T. Barraclough, The Influence of Liquid Waste Disposal on the Geochemistry of Water at the National Reactor Testing Station, Idaho: 1952 - 1970, U.S. Geological Survey Open-File Report 73-238 (IDO-22053), 1974. Idaho Department of Health and Welfare, Division of Environmental Quality, Drinking Water Supply Report, CPP, 12/6/90. WINCO Letter, RJM-106-91 from R.J. Marcinko to M.B. Hinman, "Response to State of Idaho's Sanitary Survey December 3, 1990", 3/19/91. Darrel Hall, Personal Communication 2/12/93

N.F. Not Found
N/A Not Applicable
N.R. Not Required

F. WELL FITNESS DETERMINATION

Intended use: PRODUCTION/POTABLE WELL

( ) Well is acceptable for intended use.
( ) Well is acceptable for intended use if a variance is granted.
( ) Maintenance required to continue intended use.
(X) Remediation required to continue intended use.
( ) Decommission, well is unneeded or cannot be remediated.

DEFICIENCIES: The 16 inch primary casing is not sealed. The type of casing joint and casing thickness were not documented.

REMEDIATION: The 16 inch casing should be sealed due to the possibility of perched groundwater entering the annulus from a number of sources and transporting contaminants downward over large intervals, (up to 400 ft.) through the annular space.

GEOLOGIC LOG

Well Name CPP-01

Source: Generalized Lithology Log

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Interval (feet below surface)

Begin	End	Description
0	38	Gravel and Sand
38	100	Basalt
100	105	No Sample
105	130	Basalt
130	135	Gravel and Sand
135	148	Basalt
148	158	Silt
158	161	Basalt
161	164	Gravel
164	183	Silt
183	198	No Sample
198	200	Gravel and Sand
200	345	Basalt
345	347	Cinders
347	360	Sand
360	370	No Sample
370	383	Basalt
383	390	Silt
390	425	Basalt

COMPILED BY/ORGANIZATION: T. Norton / GAI Date 2/10/93

GEOLOGIC LOG

Well Name CPP 01

Source: Generalized Lithology Log

****

Interval (feet below surface)

Begin	End	Description
425	438	Cinders
438	510	Basalt
510	513	No Sample
513	543	Basalt
543	550	No Sample
550	580	Basalt
580	585.5	No Sample

COMPILED BY/ORGANIZATION: T. Norton / GAI Date 2/10/93

WellName: CPP-01 Corrections: WELL IS LOCATED IN A WELL HOUSE

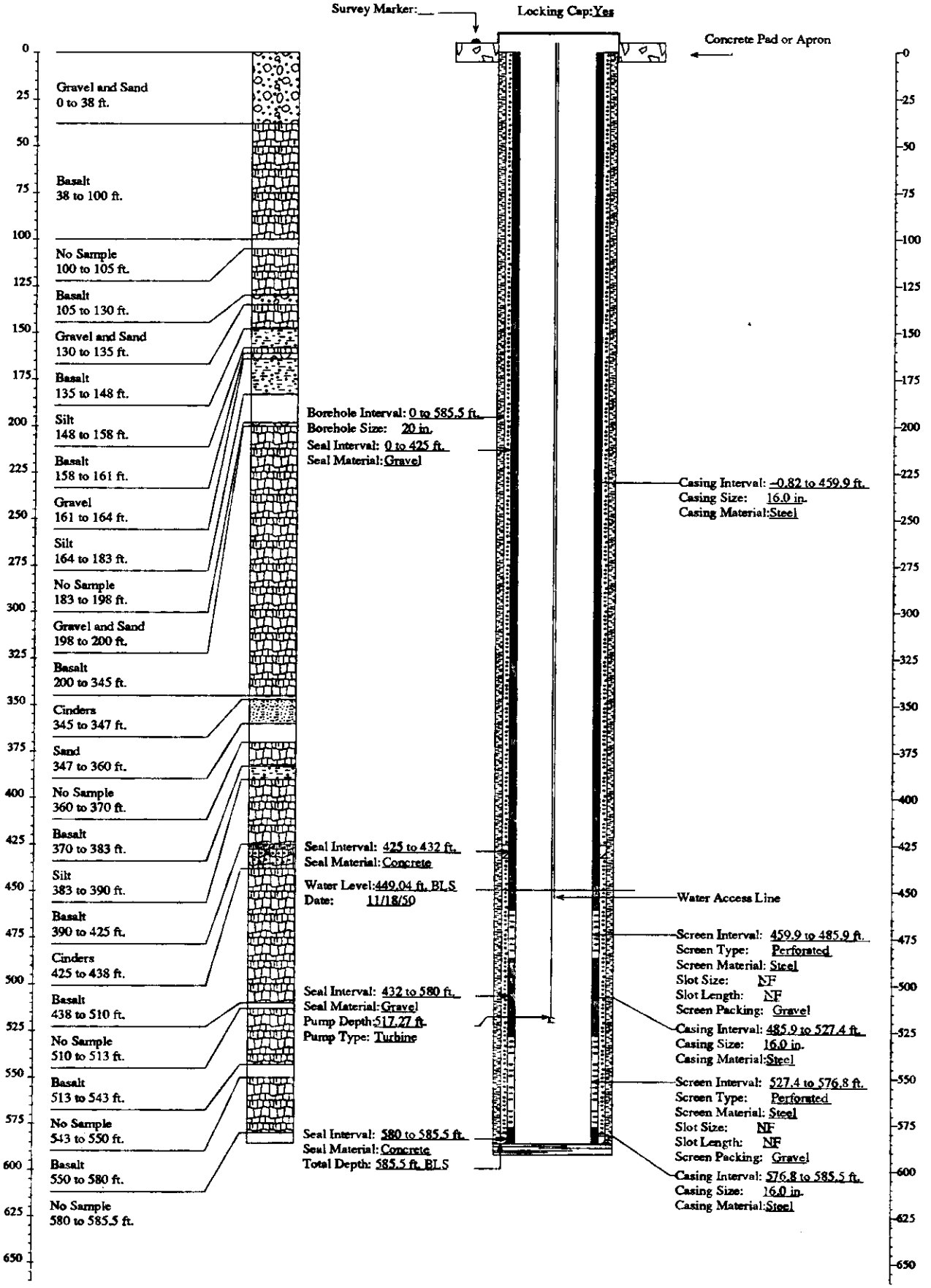
09/11/1993

Facility: ICPP
Well Type: Potable Water Well
Well Status: Active
Year Drilled: 1950
Total Depth: 585.5

Easting: 296675.00
Northing: 696666.20
Longitude: 1125602.10
Latitude: 433432.73
Completion Depth: 585.5

Driller: Strasser
Geologist: H. G. Sisco
Drilling Method: Cable tooled
Drilling Fluid: NF
Land Surface: 4913.16

Water Level: 449.04
Water Level Date: 11/18/50
Water Level Access: pipe



FITNESS-FOR-USE CHECKLIST POTABLE WATER/PRODUCTION WELL

LOCATION: ICPP (Building CPP 612) | PAGE 1 of 9 | Well Name/No. CPP-02

A. WELL USE

1) Year well was drilled: 1951

2) Current use for well:
( ) Potable water production well
(X) Raw water production well, Back-up potable water production well

3) Well is: (X) Active ( ) Inactive

4) Program Plan: ICPP Comprehensive Drinking Water Monitoring Plan

5) Responsible Organization/Contact Person: WINCO. Leon Pruitt

6) Has a sanitary survey been performed on the drinking water system by the Idaho Department of Health and Welfare: (Yes X No _ Insufficient Data NA _) Date performed 12/6/90 Deficiencies reported relevant to scope of Fitness for Use Checklist / Corrective actions taken: There were no deficiencies reported in the State sanitary survey relevant to the Fitness for Use determination.

The following evaluation pertains to well construction and does not address the design of the distribution system outside of well house or water quality issues.

B. WELL MUST COMPLY WITH IDAHO DEPARTMENT OF HEALTH AND WELFARE RULES AND REGULATIONS, TITLE 1, CHAPTER 8, "IDAHO REGULATIONS FOR PUBLIC DRINKING WATER SYSTEMS", SPECIFICALLY SUBSECTION 01.08550 "STANDARDS FOR PUBLIC DRINKING WATER SYSTEMS." WELL MUST ALSO COMPLY WITH IDAHO DEPARTMENT OF WATER RESOURCES "RULES AND REGULATIONS WELL CONSTRUCTION STANDARDS" (JANUARY 1989). THESE CRITERIA WILL BE EVALUATED IN SECTION C.

In addition, the Department of Health and Welfare has adopted "Recommended Standards for Water Works" (Albany, New York, 1992). The criteria from this report not included in "State Regulations for Well Construction" will be discussed in Section D.

1) Well shall not be located in a pit. Is this criterion met:
(Yes X No _ Insufficient Data _ N/A _)

2) Is a well house provided for this well: (Yes X No _ Insufficient Data _ N/A _) (If no, proceed to section 3)

a) Well house shall be provided with a locking door. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

b) Well house shall be protected from flooding and adequately drained. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

c) Floor drains shall not be connected to sewers, storm drains, or any other source of contamination. Is this criterion met: (Yes _ No _ Insufficient Data _ N/A X) Explanation: The well house is not equipped with floor drains.

d) Sumps for well house floor drains shall not be within 30 feet of the well. Is this criterion met: (Yes _ No _ Insufficient Data _ N/A X) Explanation: N.R.

e) Well house shall not be used to store toxic or hazardous materials. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

3) Is the well constructed with a pitless adapter or pitless unit: (Yes _ No X Insufficient Data _ N/A _) (If no, proceed to Section 4)

a) The unit shall be the type approved by the National Sanitation Division or Pitless Adaptor Division of the Water Systems Council. Is this criteria met: (Yes _ No _ Insufficient Data _ N/A _) Explanation: _

b) The unit shall be designed to be watertight including the well cap and casing extension. Is this criterion met: (Yes _ No _ Insufficient Data _ N/A _) Explanation: _

c) The unit shall be tested for leaks prior to being put into service. Is this criterion met: (Yes _ No _ Insufficient Data _ N/A _) Explanation: _

4) Well must not be located within 50 or 100 feet of any potential source of contamination and no closer to specific sources of contamination than set forth below.

a) The well must not be within 50 feet of sewer lines. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

b) The well must not be within 50 feet of canals, streams, ditches, lakes, ponds and tanks used to store non-potable substances. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

c) The well must not be within 100 feet of a drainfield or a drainfield replacement area. Is this criterion met:
(Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

d) Is the well within 50 feet of contaminated perched water bodies: (Yes No _ Insufficient Data X N/A _) Explanation: See C.3.d

5) Well casing shall extend a minimum of 12 inches above the ground surface and 6 inches above the well house floor. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

6) Well shall be vented with the open end screened and terminated downward at least 18 inches above the well house floor or ground surface. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

7) Well shall be equipped with the necessary valves and appurtenances to allow the well to be pumped to waste. Is this criterion met: (Yes X No Insufficient Data _ N/A _) Explanation: N.R.

8) A flow meter and sample tap shall be installed on discharge line. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

9) A pressure gauge shall be provided at all installations. Is this criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: N.R.

10) Well shall be cased and sealed in such a manner that surface water can not enter the well and a watertight seal shall be provided at the top of the casing. Are these criteria met: (Yes X No _ Insufficient Data _ N/A _)
Explanation: N.R.

C. WELL IS EVALUATED TO IDAHO DEPARTMENT OF WATER RESOURCES "RULES AND REGULATIONS WELL CONSTRUCTION STANDARDS" (1989)

1) Surface Completion

State of Idaho Reg. 3,2,1. The top of the casing shall be completely covered with a 1/4-inch thick, solid, new or like-new steel plate welded in place, a threaded cap, or a watertight sanitary seal cover cap. State of Idaho Reg. 3,11. The well shall be equipped with an access port which has a plug that will allow measurement of the depth to water.

a) Well capped and protected: (Yes X No _ Insufficient Data _)
b) Access to measure water levels: (Yes X No _ Insufficient Data _)

2) Casing

State of Idaho Reg. 3,3,4. Steel surface casing shall be installed into bedrock or to a depth of 18 feet, whichever is greater, with a borehole size 2 inches greater than the O.D. of the casing.

a) If the well is completed in bedrock, does the casing extend to a minimum depth of 18 feet or bedrock, whichever is greater: (Yes X No _ Insufficient Data _ N/A _) Explanation: The alluvium/basalt interface is at approximately 42 ft. bls., and 16-inch casing is installed from 1 ft. als. through 605 ft. bls.

b) If the well is completed in bedrock, is the borehole at least 2 inches greater than the largest diameter casing from ground surface to top of bedrock: (Yes X No _ Borehole size inches 24 Casing size inches 16)

c) What is/are the type of casing(s), diameter(s), interval(s), joint type(s) and casing thickness(es):

State of Idaho 3,2,1. Casing shall extend at least 12 inches above land surface. Casing joints shall be welded or screw-coupled joints which shall be watertight or be approved by the Director of Idaho Department of Water Resources. All permanent steel casing required to be installed in a well shall meet the minimum specifications listed below. State of Idaho Reg. 3,2,2. The specifications of any plastic casing to be used shall meet or exceed ASTM Standard F-480 which is a combination of Idaho State regulations for casing less than 6 inches in diameter and "Recommended Standards for Water Works" (1992) for casings greater than 26 inches in diameter.

Permanent Steel Casing Minimum Specifications

Nominal Size (inches)	Outside Diameter (inches)	Nominal Wall Thickness (inches)
1 1/2	1.900	.145
2	2.375	.154
2 1/2	2.875	.203
3	3.500	.216
3 1/2	4.000	.226
4	4.500	.237
5	5.500	.244
6 I.D.	6.625	.280
8	8.628	.322
10 I.D.	0.750	.365
12	12.750	.375
14	14.000	.375
16	16.000	.375
18	18.000	.375
20	20.000	.375
22	22.000	.500
24	24.000	.500
26	26.000	.500
28	28.000	.500
30	30.000	.500
32	32.000	.500
34	34.000	.500

Casing Type	Casing Diameter (inches)	Casing Interval (feet bls)	Type of Casing Joints	Stick-up of Casing Above Ground (inches)	Casing Thickness (inches)	Compliance W/State Regs. on Casing Thickness
Steel (1)	16	-1.0 - 605.25	N.F.	N.F.	0.312	No
(1) Casing perforated from 458 to 483 and 551 to 600 feet bls.						

3) Seal

State of Idaho Reg. 3.3.1. and 3.3.2.1. The annular space between surface casing and borehole shall be filled with cement grout, puddling clay or bentonite grout from ground surface to 18 feet or top of bedrock, whichever is greater, to prevent the possible downward movement of contaminated surface waters.

Annular Fill Material	Interval (feet bls)	Mixture/Volumes	Material Approved by State of Idaho Regs.
Gravel	0 - 438	N.F.	No
Concrete	438 - ~443	6 cu. ft.	Yes
Gravel	~443 - 605	N.F.	Yes

a) Does the surface seal extend at a minimum from ground surface to the top of bedrock: (Yes _ No X Insufficient Data _ N/A _)
Explanation: The installation of a surface seal was not identified in the available information and is believed to be absent.

b) If the seal is documented, how was it emplaced (provide intervals if there was more than one grouting event):
(Yes _ No _ Insufficient Data _ N/A X) Explanation: N.R.

State of Idaho Reg. 3.3.1. The casing seal is to prevent the downward movement of groundwater from zones that have been cased out of the well due to quality or other reasons.

c) Is the well located in proximity to surface water bodies such as percolation ponds, influent streams, spreading areas or other sources that may contribute to perched groundwater above the sampling interval near the well: (Yes X No _ Insufficient Data _ N/A _)
Explanation: The Big Lost River drainage is approximately 300 ft. to the northwest of this well's location.

d) Is there evidence of saturated formations above the sampling interval from drilling logs, geophysical logs (USGS Open-File Report 90-366) or other indicators: (Yes X No _ Insufficient Data _ N/A _) Explanation (Qualify data/specify perched intervals if applicable): The geophysical logs are inconclusive and do not correlate sufficiently to make an accurate determination whether or not saturated zones were present at the time the logs were taken (12/18/84). However, there is a long history of perched water at the ICPP. Sources and locations of all the perched zones are not well defined. It is likely that perched water associated with the Big Lost River will approach CPP 02 at times, when the river has been flowing for extended periods of time. For comparison, the perched water body associated with the ICPP percolation ponds extend well over 800 ft. from the source and at TRA USGS Well 78 monitors a perched water body associated with the Big

Lost River over 200 ft. away. CPP 02 is approximately 300 ft. from the Big Lost River. Additionally at the ICPP there is a known perched water body associated with wells CPP 33-04 and CPP 33-03 600 ft. to the southeast, the northern extent of which is not known.

e) Is the casing sealed adequately to prevent groundwater movement within the annular space: (Yes _ No X Insufficient Data _ N/A _) Explanation: From the available information, it does not appear that the casing was sealed anywhere above 438 ft.

4) Gravel Pack. Does the well contain a gravel pack: (Yes X No _) If yes, is there a packer or adequate seal to prevent the migration of surface water or perched groundwater into the gravel pack: (Yes X No _ Insufficient Data N/A _) Explanation: The cement at 438 ft. bls. (estimated to be 5 ft. thick) should prevent groundwater from entering the gravel pack through the annulus from above.

D. WELL MUST COMPLY WITH "RECOMMENDED STANDARDS FOR WATER WORKS" (1992), A REPORT OF THE COMMITTEE OF THE GREAT LAKES-UPPER MISSISSIPPI RIVER BOARD OF STATE SANITARY ENGINEERS.

1) Does the well contain a packer that is in contact with the groundwater supply interval: (Yes _ No X Insufficient Data _ N/A _). If yes, is the packer comprised of materials that are toxic, will impair taste or odor, or facilitate bacterial contamination of the well water: (Yes _ No _ Packer Type _ N/A X)

2) Screen

a) Does the well contain perforated casing or a screen: (Yes X No Insufficient Data _ N/A _) If yes, the perforated screen or casing must be installed so that the pumping water level remains above it under operating conditions. The following determination was made from the available production water level data which will vary with changes in the static water levels (water table elevation); therefore, the following determination may not be valid under all conditions. Is the criterion met: (Yes X No _ Insufficient Data _ N/A _) Explanation: The reported production water level is approximately 454 ft. bls., and the perforated casing is installed starting at 458 ft. bls, so the production water level is 4 ft. above the initial perforations.

b) Is the perforated casing or screen constructed of material resistant to damage by chemical action from the groundwater or cleaning operations: Material Type Steel Explanation: Steel is an acceptable well construction material for casing or screen in a non-acidic environment such as the Snake River Plain aquifer, as is demonstrated in EG&G report EGG-ER-8496.

3) If the casing is constructed of nonferrous material, it must be resistant to the corrosiveness of the water. Is this criterion met:
(Yes _ No _ Insufficient Data _ N/A X)

4) Was the well adequately developed to remove native silts and clays, drilling mud or the finer fraction of the gravel pack: (Yes X No _ Insufficient Data N/A _) Explanation: There is no documentation of well development in the available information for this well. However, the well has been in service since 1951, and is considered to be sufficiently developed at this time.

E. **THE PRIMARY SOURCE FOR THE WELL EVALUATION IS THE IDAHO NATIONAL ENGINEERING LABORATORY COMPREHENSIVE WELL SURVEY. OTHER SOURCES:** Westinghouse Idaho Nuclear Company Inc. Draft Final, Groundwater Monitoring Plan for the Idaho Chemical Processing Plant, 1992. Robertson, J.B., R. Sehoen, J.T. Barraclough, The Influence of Liquid Waste Disposal on the Geochemistry of Water at the National Reactor Testing Station, Idaho: 1952 - 1970, U.S. Geological Survey Open-File Report 73-238 (IDO-22053), 1974. Idaho Department of Health and Welfare, Division of Environmental Quality, Drinking Water Supply Report, CPP, 12/6/90. WINCO Letter, RJM-106-91 from R.J. Marcinko to M.B. Hinman, "Response to State of Idaho's Sanitary Survey December 3, 1990", 3/19/91. D. Hall, Personal Communication 2/12/93

N.F. Not Found
N/A Not Applicable
N.R. Not Required

F. WELL FITNESS DETERMINATION

Intended use: PRODUCTION/POTABLE WELL

( ) Well is acceptable for intended use.
( ) Well is acceptable for intended use if a variance is granted.
( ) Maintenance required to continue intended use.
(X) Remediation required to continue intended use.
( ) Decommission, well is unneeded or cannot be remediated.

DEFICIENCIES: The well was not constructed with a surface or casing seal. Documentation of the type of casing joint was not found in the available information and the thickness of the 16 inch casing (0.312 in.) does not comply with Idaho State regulations.

REMEDIATION: The 16 inch casing should be sealed due to the possibility of perched groundwater entering the annulus from a number of sources and transporting contaminants through the annular space over a large interval (400 ft.) of the annular space.

GEOLOGIC LOG

Well Name CPP-02

Source: Generalized Log

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Interval (feet below surface)

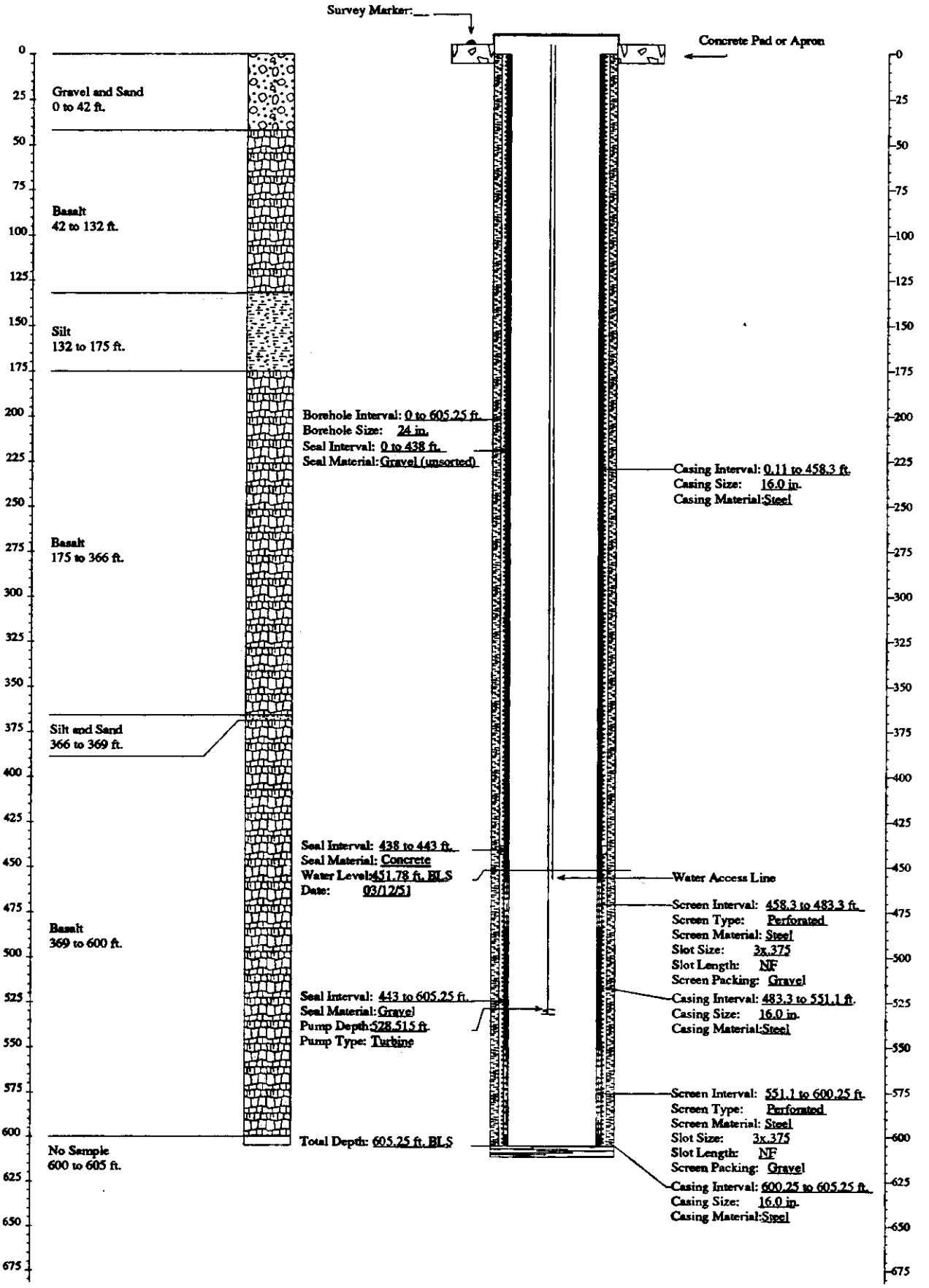
Begin	End	Description
0	42	Gravel and Sand
42	132	Basalt
132	175	Silt
175	366	Basalt
366	369	Silt and Sand
369	600	Basalt
600	605	No Sample

COMPILED BY/ORGANIZATION: T. Norton / GAI Date 2/15/93

WellName: CPP–02 Corrections: WELL IS LOCATED IN A WELL HOUSE 08/24/1993

Facility: ICPP
Well Type: Potable Water Well
Well Status: Active
Year Drilled: 1951
Total Depth: 605.25

Easting: 296165.30
Northing: 696664.80
Longitude: 1125609.02
Latitude: 433432.67
Completion Depth: 605.25

Driller: Strasser
Geologist: R. Carson,H.G. Sisco
Drilling Method: Cable tooled
Drilling Fluid: NF
Land Surface: 4915.38

Water Level: 451.78
Water Level Date: 03/12/51
Water Level Access: Line