



STATE OF WASHINGTON  
DEPARTMENT OF FISH AND WILDLIFE

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c/o Department of Ecology  
1315 W. 4<sup>th</sup> Ave.  
Kennewick, WA 99336

5 September, 2000

Mike Goldstein  
U.S. Environmental Protection Agency  
712 Swift Blvd., Suite 5  
Richland, WA 99352

**RECEIVED**  
SEP 12 2000  
**EDMC**

Dear Mr. Goldstein:

Subject: Comments on the *Proposed Plan for the 300-FF-2 Operable Unit* DOE/RL-99-53, Rev. 0, and the *Focused Feasibility Study for the 300-FF-2 Operable Unit*, DOE/RL-99-40, Rev. 0.

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The Washington Department of Fish and Wildlife (WDFW) appreciates the opportunity to provide comments on the aforementioned document. Our review focused on the disposition of our comments submitted on the draft A documents. Those comments included requests for ecological exposure/effect (EE/E) assessments to be conducted on federally listed salmonid species to establish clean-up levels protective of these species, and for an EE/E assessment on species protected under the Migratory Bird Treaty Act. Unfortunately, these requests were not addressed and remain applicable (enclosure). What is even more disturbing is the Explanation of Significant Differences (ESD) that was issued for the ground water attached to the 300-FF-2 after the close of the comment period on the draft A documents and the issuance of the rev. 0 documents. This action clearly circumvents the intent and requirements of the Comprehensive, Environmental Response, Compensation and Liability Act (CERCLA), National Environmental Policy Act (NEPA) and the Endangered Species Act (ESA). Because of insufficient biological characterization data, we are unable to support any proposed remedial action until adequate biological characterization occurs for this operable unit and associated ground water that is being contaminated by source units within this operable unit.

WDFW has been advocating EE/E assessments for some time for the site. An example of an exemplary EE/E assessment model is that which was designed and deployed at the Rocky Mountain Arsenal in Colorado to achieve protection of wildlife. Cost savings and benefits from conducting such work include a reduction in the size of the remedial footprint and the identification of outlying areas of contamination. U.S. Department of Energy (USDOE), as trustee and steward, would benefit tremendously from using best

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available science to determine effects of contaminants to biological resources and integrate findings from such work into the remedial decision making process. To date, little effort and insufficient funds have been directed toward determining effects (injury) to biological resources at the Hanford Site and as a result, the public is left wondering whether remedial actions are truly protective of biological resources.

The issuance of an ESD for the contaminated ground water associated with the 300-FF-2 operable unit prior to issuance of these final documents (Rev. 0) appears premature. This decision eliminated public involvement in the remedial decision making process and ignores the intent and statutory requirements of CERCLA, NEPA and ESA. Furthermore, no remedial design/remedial action process occurred for the 300-FF-5 operable unit, and the record of decision (ROD) for the 300-FF-5 ground water contamination was natural attenuation. It is arguable whether an ESD should have been considered based on U.S. Environmental Protection Agency's (EPA) OSWER Directive 9355.3-02. To reiterate, the public now has no opportunity to comment on the 300-FF-2 associated ground water contamination because no formal public comment period, public meeting, and responsive summary are required when issuing an ESD, according to the OSWER Directive 9355.3-02.

A major concern of WDFW is the contaminated ground water beneath the 300-FF-2 and 300-FF-1 operable units. At least one site within the 300-FF-2 operable unit is contributing to the uranium ground water contamination. Uranium is a major contaminant of concern due to its chemical toxicity and radiological effects and half-life. Its additive radiological effect as well as chemical toxicity must be considered with other contaminants being released to the Columbia River. The selected interim remedy for the 300-FF-5 operable unit is natural attenuation and continued monitoring of the ground water to ensure the concentrations continue to decrease and institutional controls to ensure that the ground water use is restricted to prevent unacceptable exposures. WDFW believes that the 300-FF-5 ROD should be revisited to address protection of federally listed salmonid species and that EE/E assessments should be conducted to ensure that the selected remedy documented in the 300-FF-5 ROD is not likely to jeopardize the continued existence of any listed species. A re-evaluation of the 300-FF-5 selected remedy is justified based on Washington Department of Ecology's analysis of uranium concentrations in near shore river wells that show uranium concentrations increasing, instead of decreasing (memo dated May 25, 2000 from Shri Mohan, Hydrogeologist 3, to Alex Stone, transition Project Manager, enclosure).

As part of the CERCLA 5-year review process, EPA and USDOE need to consult the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) under Section 7 of the ESA on the 300-FF-5 ROD since contaminant levels of uranium are increasing which could jeopardize the continued existence of listed species (16 U.S.C. Sec. 1536 (a)(2)). The consultation requirements of section 7 are

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nondiscretionary and are effective at the time of species' listings regardless of whether critical habitat is designated. In its preliminary natural resource survey that was conducted in 1989 for the Hanford Site, the U.S. Department of the Interior stated, "Should a species become officially listed or proposed before the completion of site remediation, EPA and DOE should be aware of their continuing responsibilities as described in Section 7(a) and (c) of the Endangered Species Act of 1973, as amended". Please forward this response letter and enclosures to EPA staff responsible for conducting the 5-year review on the 300-FF-5 operable unit.

Some source sites within the 300-FF-2 operable unit are surrounded by high quality shrub steppe and inhabited by numerous wildlife species, which have access to the known contaminated waste sites. Exposure and effects to specific contaminants are unknown at this time since an EE/E assessment has not been conducted. Selected remedies that include institutional controls may not be protective of wildlife species. Appropriate biological characterization needs to occur prior to cleanup actions to determine if selected remedial response actions reduce or eliminate contaminant pathway(s) to wildlife. At this time, data remain insufficient to perform a meaningful ecological risk assessment. Our conclusion is supported by statements made in the document such as, "There are no empirical data that can be used to validate the exposure estimates in risk assessments performed at the 300-FF-1 and 300-FF5 operable unit waste sites". These operable unit risk assessments were used for the 300-FF-2 ecological risk analysis.

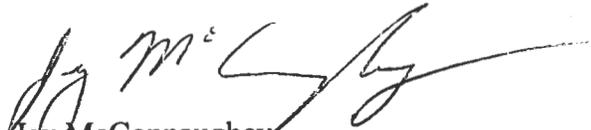
We have the following recommendations: 1) that USDOE and EPA seek contaminant expertise from NMFS and USFWS for species protected under ESA and the Migratory Bird Treaty Act, 2) that EE/E assessments be designed and deployed as part of the pre-remedial characterization process, 3) that milestones be developed for the EE/E assessments, and 4) that this proposed plan and feasibility study be re-written to include the appropriate analysis required under the remedial investigation/feasibility study process prescribed under the National Contingency Plan and then reissued for public comment.

In summary, we are unable to support any proposed remedial action due to a lack of biological characterization. Complete characterization needs to occur which must include radiological activity and chemical concentrations of contaminants of concern and that a systematic investigation needs to occur for terrestrial and aquatic receptors, including federally listed species. Finally, we request that EPA hold a formal public comment period, public meeting and develop a responsive summary on the comprehensive 5-year review process currently underway for the Hanford Site NPL sites/Operable Units.

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5 September, 2000  
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If you have any questions regarding these comments, please contact me at (509) 736-3095.

Sincerely,



Jay McConnaughey  
Habitat Biologist, Hanford Site

Enclosures (2)

cc:

Hanford Natural Resource Trustee Council

Susan Hughs, Chair

S. Landino, NMFS

G. Hughes, USFWS

G. Jackson, USFWS

L. Cusack, Ecology

J. Price, Ecology

T. Clausing, WDFW

✓300 Area Administrative Record

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STATE OF WASHINGTON  
DEPARTMENT OF FISH AND WILDLIFE

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1315 W. 4<sup>th</sup> Ave.  
Kennewick, WA 99336

12 January, 2000

Mike Goldstein  
U.S. Environmental Protection Agency  
712 Swift Blvd., Suite 5  
Richland, WA 99352

Dear Mr. Goldstein:

Subject: Comments on the *Proposed Plan for the 300-FF-2 Operable Unit* DOE/RL-99-53 Draft A, and the *Focused Feasibility Study for the 300-FF-2 Operable Unit*, DOE/RL-99-40, Draft A.

The Washington Department of Fish and Wildlife (WDFW) appreciates the opportunity to provide comments on the aforementioned documents. We also referenced the *Limited Field Investigation Report for the 300-FF-2 Operable Unit* in developing our response. We conclude that there has been insufficient characterization of the 300-FF-2 Operable Unit to make any informed remedial decisions. Specifically, insufficient biological data has been gathered that prevents us from determining what hazardous substances are biologically available and pose a risk to biological receptors. Therefore, we are unable to support any proposed remedial action without additional biological data being collected to establish an appropriate pre-remedial baseline for the 300-FF-2 Operable Unit.

The 300-FF-2 ecological risk assessment is unacceptable. Data are not sufficient to formulate a conceptual model of the sites and to perform an ecological risk assessment. In addition, the 300-FF-5 Operable Unit risk assessment is outdated and is inappropriate as an analogous analysis for the 300-FF-2 Operable Unit. Groundwater contaminants are reaching the Columbia River as stated in the Focused Feasibility Study. Therefore, these contaminants must be evaluated to assess impacts to federally listed salmonids.

The Work Plan and Focus Feasibility Study have not considered recent federal listings under the Endangered Species Act (ESA). Three salmonid species have been listed. They include upper Columbia River steelhead (*Oncorhynchus mykiss*), as endangered (8/97), upper Columbia River spring chinook salmon (*O. tshawytscha*), as endangered (3/99), and bull trout (*Salvelinus confluentus*), as threatened (6/98). The NCP (40 CFR § 300.430(e)(2)(i)(G)) states "Environmental evaluations shall be performed to assess threats to the environment, especially sensitive habitats and critical habitats of species protected under the ESA." We request that U.S. Department of Energy (USDOE) gather

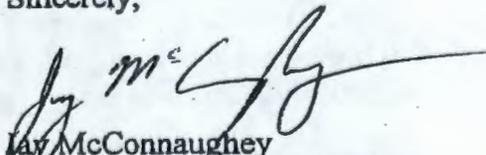
Mr. Goldstein  
12 January, 2000  
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ecological exposure/assessment information to determine any adverse effects to federally listed salmonid species and to establish clean-up levels protective of these species.

WDFW asks that the Migratory Bird Treaty Act (MBTA) be added as an applicable or relevant and appropriate requirement. Pathways may be open that could possibly adversely impact individual species protected by the MBTA. This request is consistent with a memorandum issued by the U.S. Environmental Protection Agency on October 7, 1999 from the Director of Office of Emergency and Remedial Response to Superfund National Policy Managers Region 1-10, Subject: *Issuance of Final Guidance: Ecological Risk Assessment and Risk Management Principles for Superfund Sites*. The Director states that "Superfund remedial actions generally should not be designed to protect organisms on an individual basis (the exception being designated protected status resources, such as listed or candidate threatened and endangered species or treaty-protected species that could be exposed to site releases)..." We interpret that sentence to include species protected under the MBTA. WDFW asks that USDOE perform an ecological exposure/assessment to ensure the proposed remedial actions are protective of these species.

Again, thank you for the opportunity to comment. If you have any questions regarding these comments, please contact me at (509) 736-3095.

Sincerely,



Jay McConnaughey  
Habitat Biologist, Hanford Site

cc:  
Hanford Natural Resource Trustee Council  
Susan Hughs, Chair  
R. McLeod, USDOE  
L. Cusack, Ecology  
J. Hedges, Ecology  
T, Clausing, WDFW  
300 Area Administrative Record

May 25, 2000

TO: Alex Stone, Transition Project Manager  
Nuclear Waste Program

FROM: Shri Mohan   
Hydrogeologist 3, Nuclear Waste Program

SUBJECT: 300-FF-2 Operable Unit (OU) Uranium Groundwater Contamination

**Conclusions**

**Soil**

1. Uranium groundwater contamination is likely occurring from sources other than 300-FF-1 OU. Specifically, it is concluded that the source sites are located outside of the uranium groundwater plume, as defined in the 300-FF-5 OU documentation. Uranium groundwater contamination that has been previously documented is described below as background information.

**Groundwater**

2. Uranium concentrations in the groundwater have not attenuated as predicted (i.e., levels are observed to increase). The predicted attenuation is described below as background information.
3. Uranium groundwater contamination is not currently linked to source sites. In addition, insufficient source monitoring is occurring to allow groundwater contamination source determinations.
4. Uranium contamination has been migrating in the groundwater as observed from wells located along the river's edge. Furthermore, the concentration of this uranium contamination has been increasing for the last decade.

**Data Evaluation/Other**

5. The evaluation of groundwater contamination has not allowed groundwater impacts from the 300-FF-2 OU source sites to the Columbia River to be understood (i.e., impacts to groundwater quality, impacts to drinking water sources, impacts to ecological receptors, etc.).
6. An evaluation of the available uranium groundwater contamination data in relation to the 300-FF-5 OU, after issuance of the interim ROD and in relation to potential 300-FF-2 OU source sites, does not appear to have been performed. As such, potential impacts have not been evaluated inclusively in the decision process associated with the 300-FF-2 OU.

300-FF-2 Operable Unit (OU) Uranium Groundwater Contamination

**Hanford Environmental Information System (HEIS) Uranium Data Review**

I have conducted a review of uranium groundwater data currently available in the HEIS database associated with the 300-FF-5 OU. Trend plots of uranium concentrations (pCi/L) versus sampling dates were developed for the following groundwater monitoring wells: 399-2-3, 399-2-2, 399-1-5, 399-1-4, 399-3-10, 399-2-1, 399-1-2, 399-3-3, 399-3-2, and 399-3-6. A copy of all trend plots developed is attached.

The following observations were made from review of the information:

- Uranium concentrations have not decreased as predicted. See plots from wells 399-2-3, 399-2-2, 399-1-5, 399-1-4, 399-3-10, 399-2-1, 399-1-2, 399-3-3, 399-3-2, and 399-3-6.
- Wells 399-2-2, 399-2-3, 399-3-1, 399-3-9 and 399-3-10 are located north to south along the river shoreline. The trend plots show gradual increasing uranium concentrations in all these wells. The increasing trend is seen beginning around the year 1990 and has been increasing since. The maximum concentration of uranium in the north most well 399-2-2 is about 350 pCi/L and the southern well 399-3-10 is about 90 pCi/L. All these wells fall within the 300-FF-5 uranium plume. All these wells are very close to the river and it can be easily concluded that the contaminant has been polluting the river for many years.
- Wells 399-3-6, 399-3-2 and 399-3-3 are located on the southern part of 300-FF-1 area and are outside the boundary of the uranium plume. There is no specific trend of the uranium concentrations on these wells. However, the concentrations of uranium have been periodically up to approximately 40 pCi/L. Some external source seems to be impacting the uranium concentrations of these wells.
- Wells 399-1-2, 399-1-4 and 399-1-5 have also been plotted for uranium trends. These wells are located within uranium plume and are on the western edged of 300-FF-1 operable unit. Well 399-1-5 shows a definite increasing trend of uranium since about 1992, the maximum concentration being about 180 pCi/L. The other two wells, 399-1-2 and 399-1-4, indicate concentrations in the range of 20 to 50 pCi/L since the beginning of observations. The impact on these wells could be from the source sites in the vicinity of the wells.

**Background**

**"Limited Field Investigation Report for the 300-FF-2 Operable Unit", Rev. 0**

The "Limited Field Investigation Report for the 300-FF-2 Operable Unit", (DOE/RL-96-42, Rev. 0) describes the groundwater contamination associated with 300-FF-2 OU source sites and states:

[A] plume of groundwater contamination is also present throughout the 300 Area as a result of historical 300 Area activities (DOE-RL 1994a). The plume is centered beneath the 300-FF-1 Operable Unit and includes TCE, 1,2-dichloroethylene (1,2-DCE), and uranium isotopes. Maximum concentrations of the contaminants occur primarily in the vicinity of the 316-5 Process Trenches and the North and South Process Ponds (316-1

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300-FF-2 Operable Unit (OU) Uranium Groundwater Contamination

and 316-2). While 300-FF-2 sources may also be contributing to the 300-FF-5 groundwater contamination, based on current RI/FS data collected from the 300-FF-5 Operable Unit investigation, there are no known 300-FF-2 sources impacting the 300-FF-5 groundwater.

**"Proposed Plan for the 300-FF-2 Operable Unit" (DOE/RL-99-53, Draft A)**

The "Proposed Plan for the 300-FF-2 Operable Unit" (DOE/RL-99-53, Draft A, November 1999) describes the groundwater contamination associated with 300-FF-2 OU source sites and states: "[T]he 316-4 Crib is the only 300-FF-2 OU waste site that has been shown to impact groundwater. Groundwater monitoring results suggest that the remaining uranium contamination is localized and still bound within the soil underlying the crib." The groundwater contamination is further described by the following:

Uranium contamination in groundwater beneath the 316-4 Crib was first detected in 1951. Local area groundwater wells, surface contours, and flow directions are depicted in Figure 5. Concentrations of uranium detected in groundwater from well 699-S6-E4A ranged between 22 and 165 µg/L from 1996 to 1999. Based on monitoring information and estimates of travel times from well 699-S6-E4A to the nearest downgradient wells and the Columbia River (43 days and 7.3 years, respectively), the contamination appears to be localized at the 316-4 Crib and is not migrating into other areas.

The "Proposed Plan for the 300-FF-2 Operable Unit" (DOE/RL-99-53, Draft A, November 1999) states:

This Proposed Plan presents remedial action alternatives for the 7 general content burial grounds, 47 source sites, and 20 candidate sites included in the 300-FF-2 OU. It also addressed contaminated groundwater beneath the 316-4 Crib. The 300-FF-2 source OU is the third and final OU associated with cleanup of the 300 Area NPL site. Remediation of the 300-FF-1 and 300-FF-5 OUs is underway in accordance with an associated ROD. The remedial actions presented in this Proposed Plan address contaminated soil and groundwater associated with the 300-FF-2 OU and are consistent with the ongoing cleanup actions in the 300 Area.

**"EPA National Remedy Review Board Briefing Package 300-FF-2 Operable Unit"**

The "EPA National Remedy Review Board Briefing Package 300-FF-2 Operable Unit" (December 6, 1999), states: "The 300-FF-2 OU also includes one area of existing groundwater contamination that was not addressed as part of the ROD for the 300-FF-5 OU." In a description of the 300-FF-5 Groundwater OU, it is stated: "[B]ased on results from groundwater monitoring, no 300-FF-2 OU sources appeared to be impacting 300-

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300-FF-2 Operable Unit (OU) Uranium Groundwater Contamination

FF-5 OU groundwater at that time." The same document describes the 300-FF-2 OU by:  
"[I]t also addresses existing groundwater contamination beneath the 316-4 Crib."

**"Proposed Plan for the 300-FF-2 Operable Unit" (DOE/RL-99-53, Draft B)**

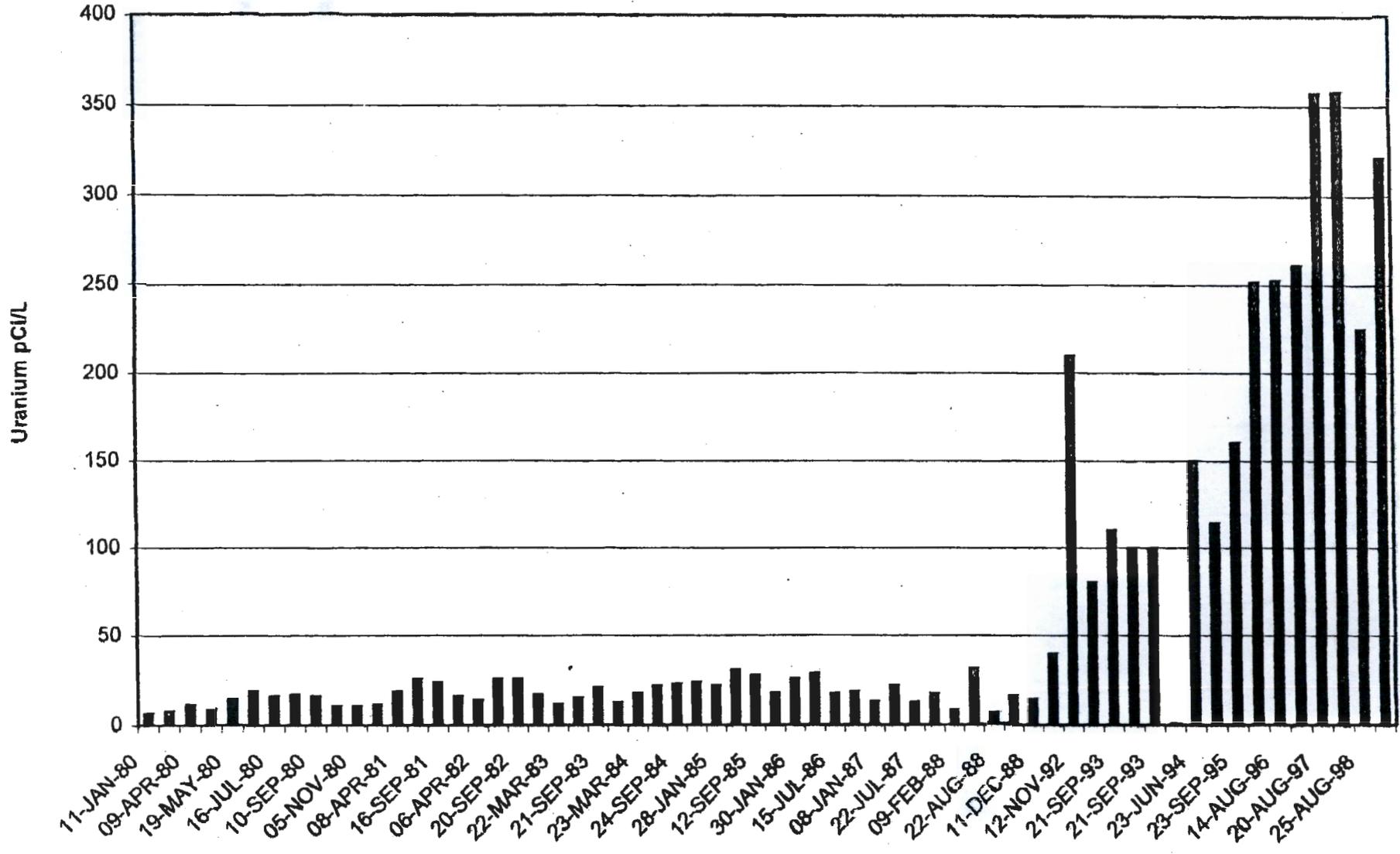
The "Proposed Plan for the 300-FF-2 Operable Unit" (DOE/RL-99-53, Draft B, April 2000) describes the 300-FF-5 Groundwater Operable Unit and the basis of the 300-FF-5 OU ROD. Specifically, the following conclusions are identified:

- Uranium was the primary contaminant of concern in 300 area groundwater
- 300-FF-1 OU liquid disposal sites were a primary source of the groundwater contamination
- elevated uranium concentrations in groundwater were estimated to dissipate in 3 – 10 years as a result of removal of source materials and natural attenuation.

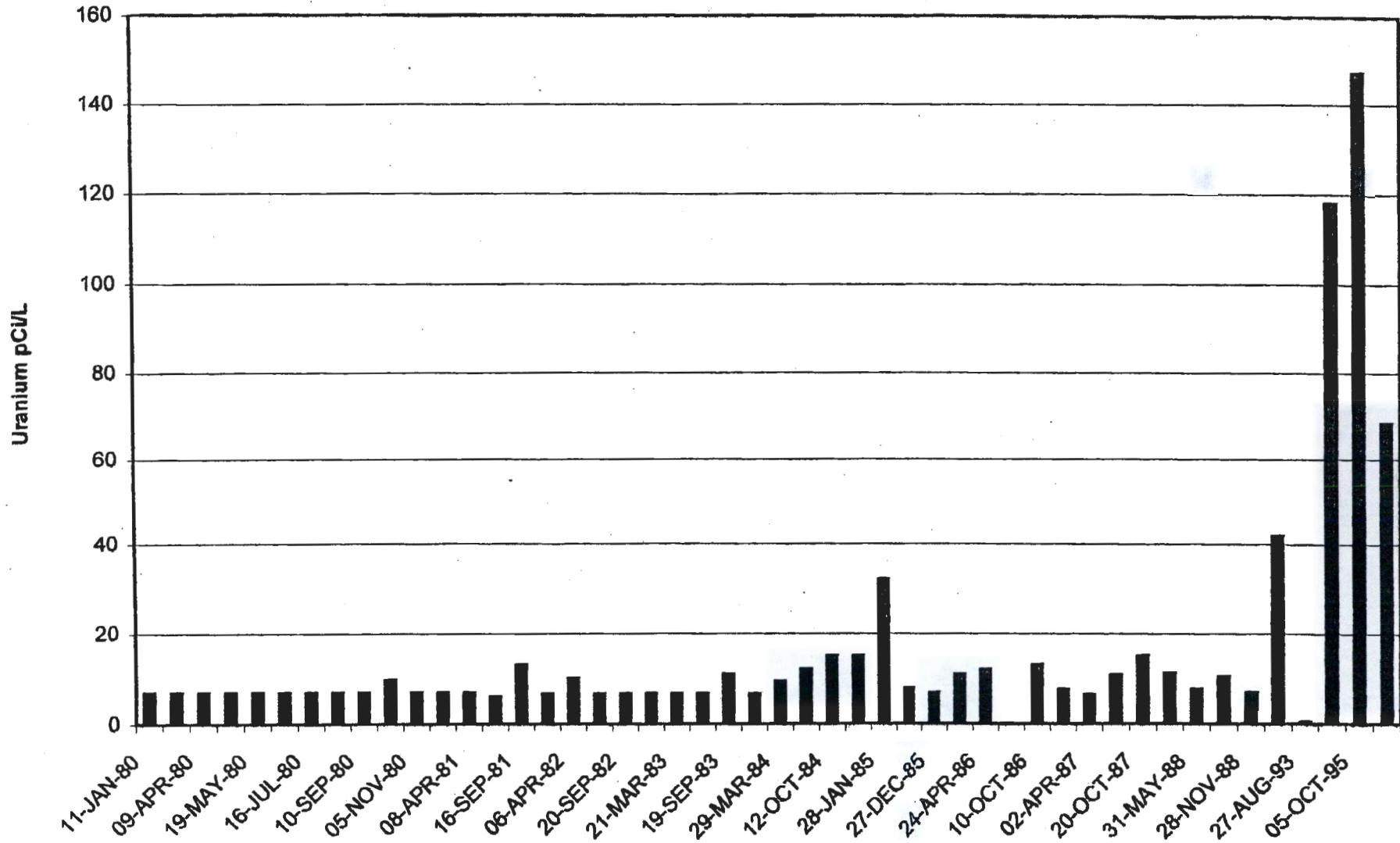
The "Proposed Plan for the 300-FF-2 Operable Unit" (DOE/RL-99-53, Draft B) defers all groundwater contamination issues to the 300-FF-5 OU by the following: "Any contaminated groundwater that is attributed to the 300-FF-2 OU waste sites will be addressed as part of the 300-FF-5 OU."

cc: Laura Cusack  
Dib Goswami  
Jane Hedges  
Alisa Huckaby  
Stan Leja  
Tina Masterson-Heggen  
Nuclear Waste Program Kennewick Office Reader File

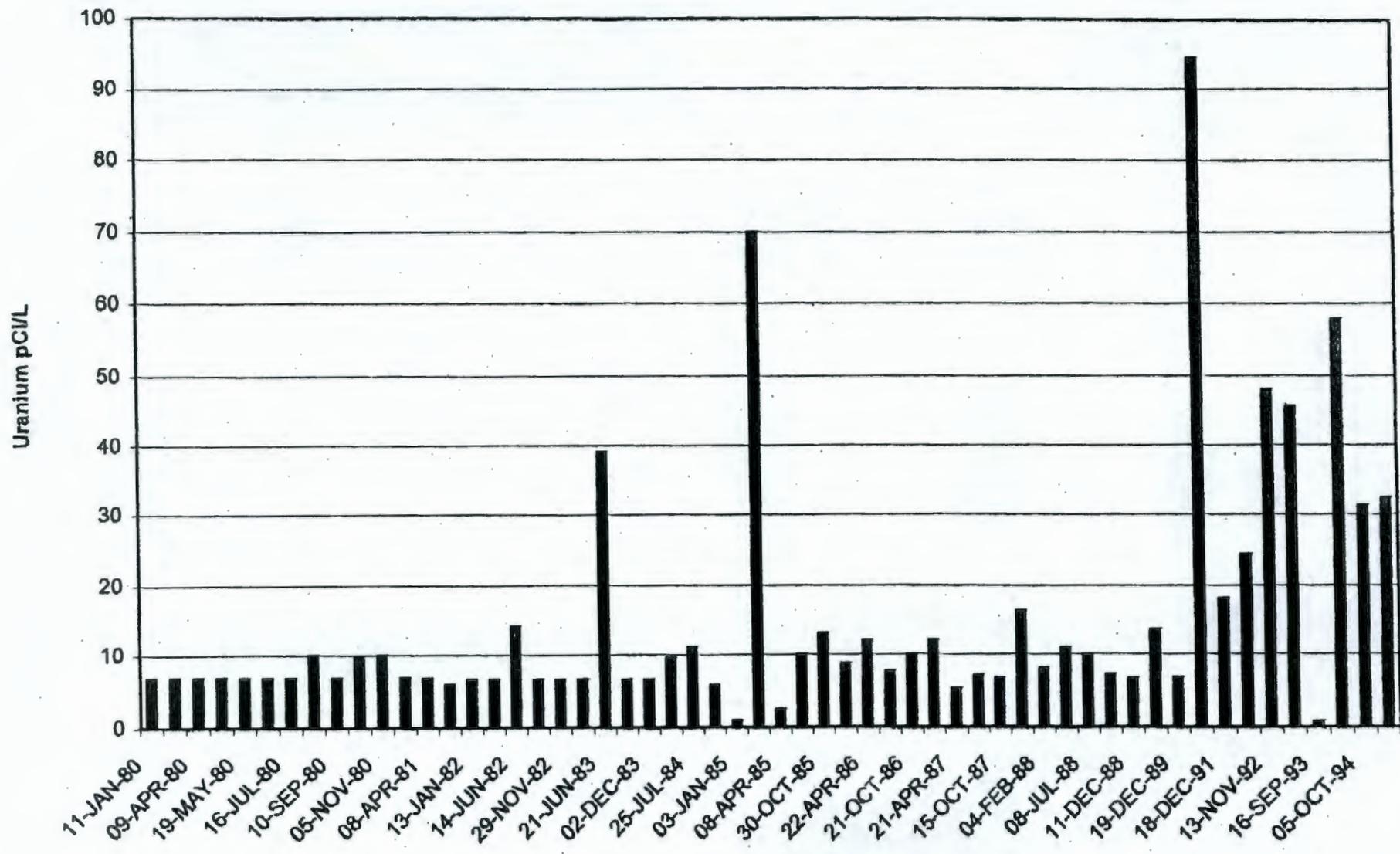
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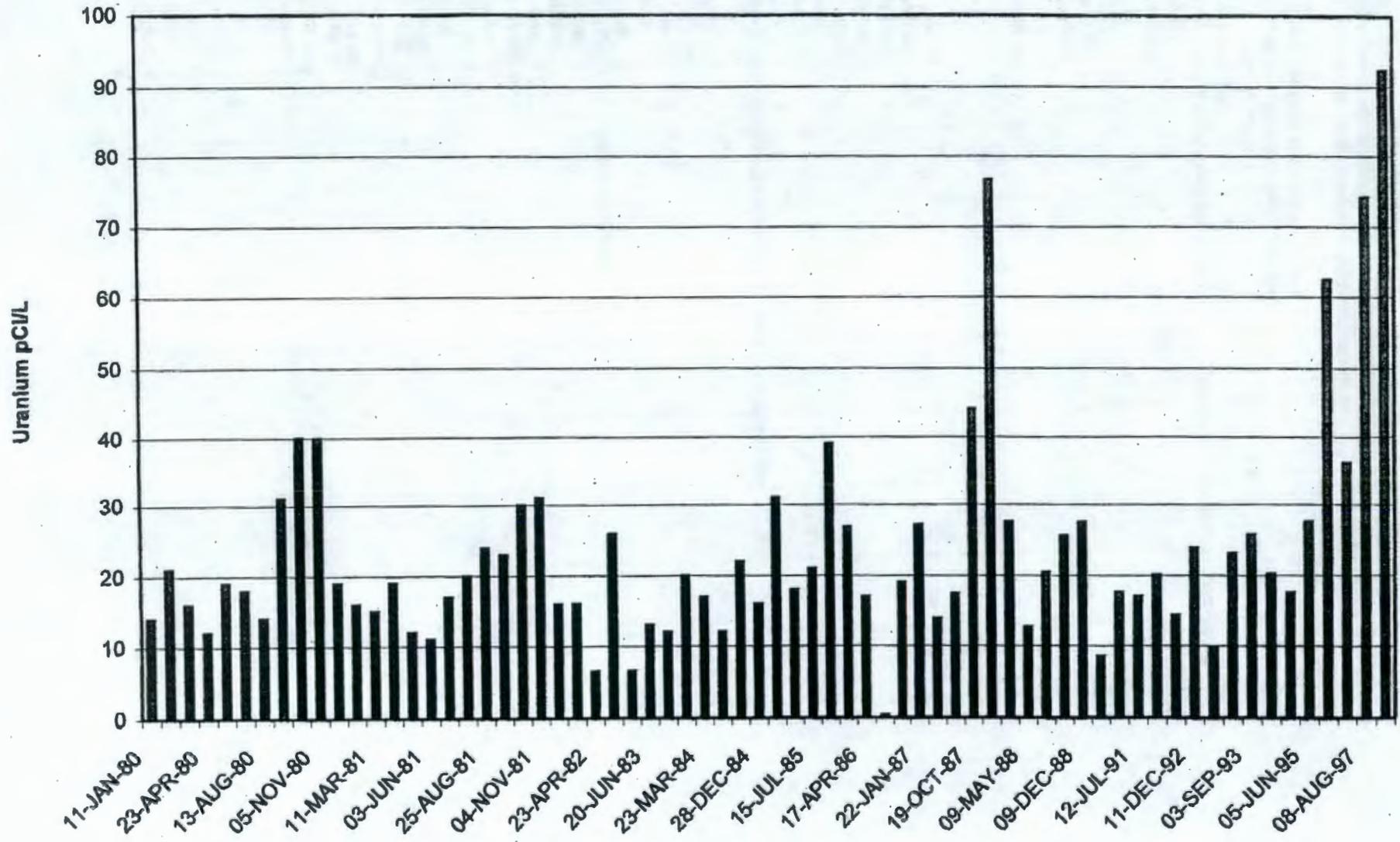
Well 399-2-3



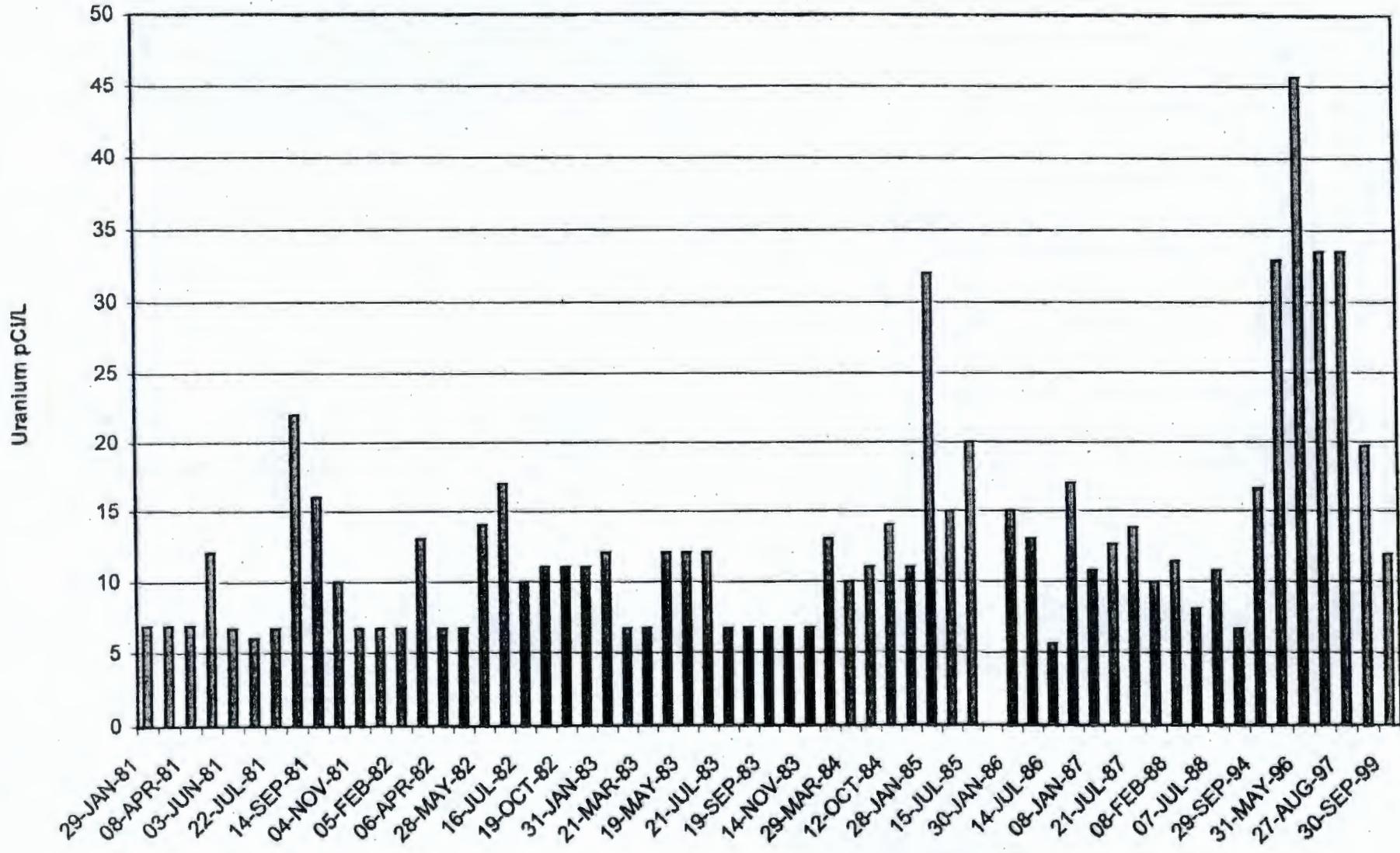
Well 399-2-1



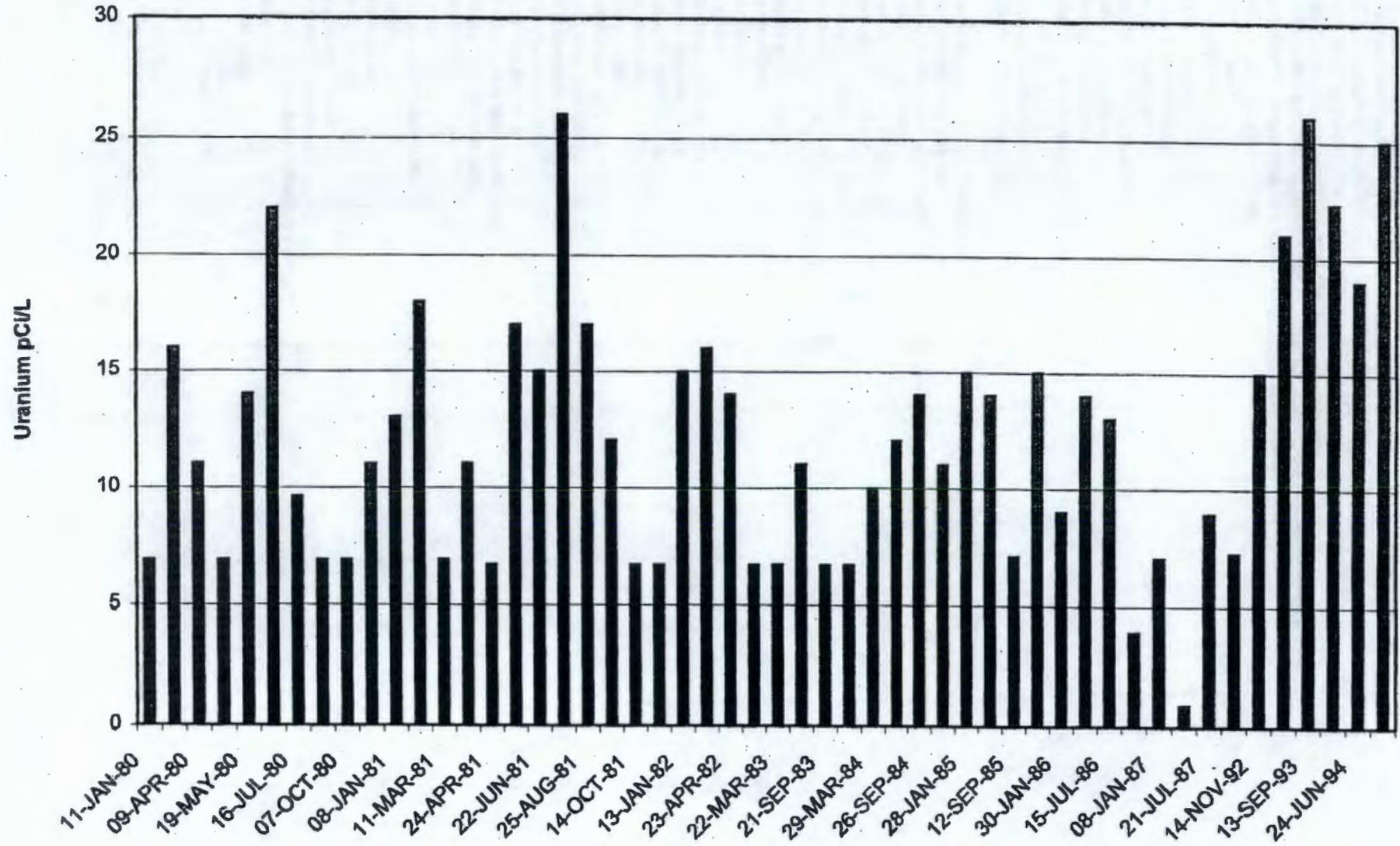
Well 399-3-10



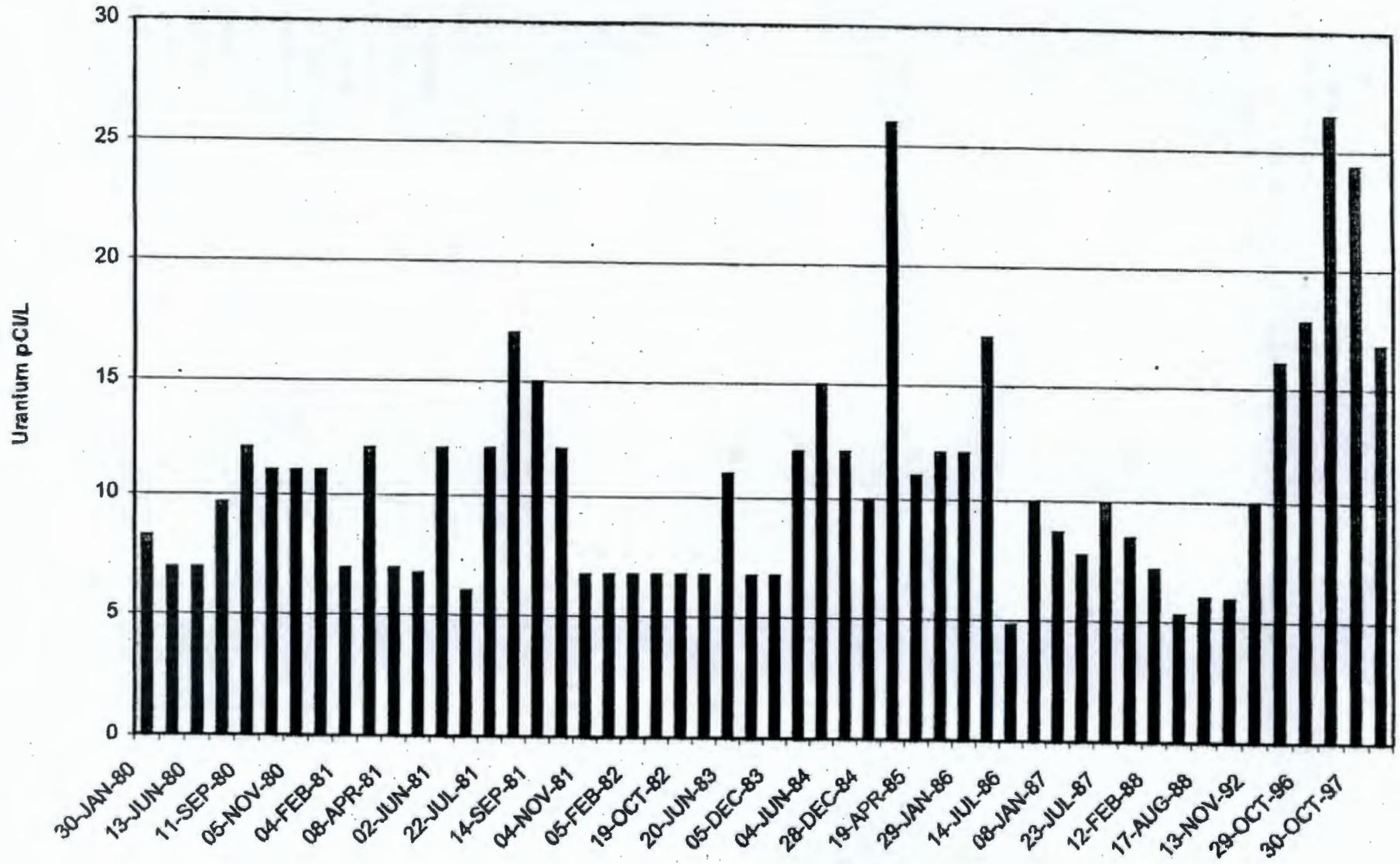
Well 399-3-6



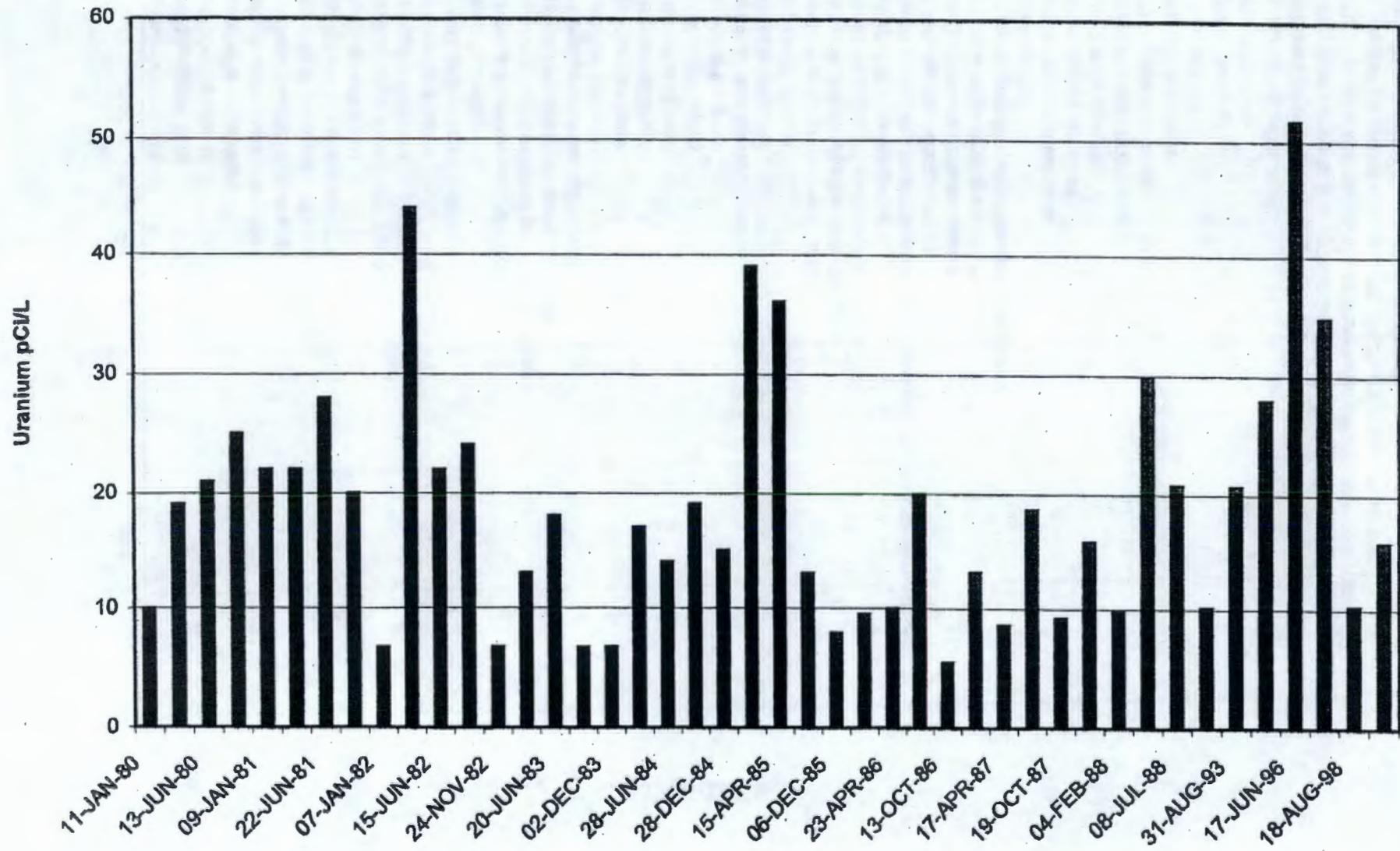
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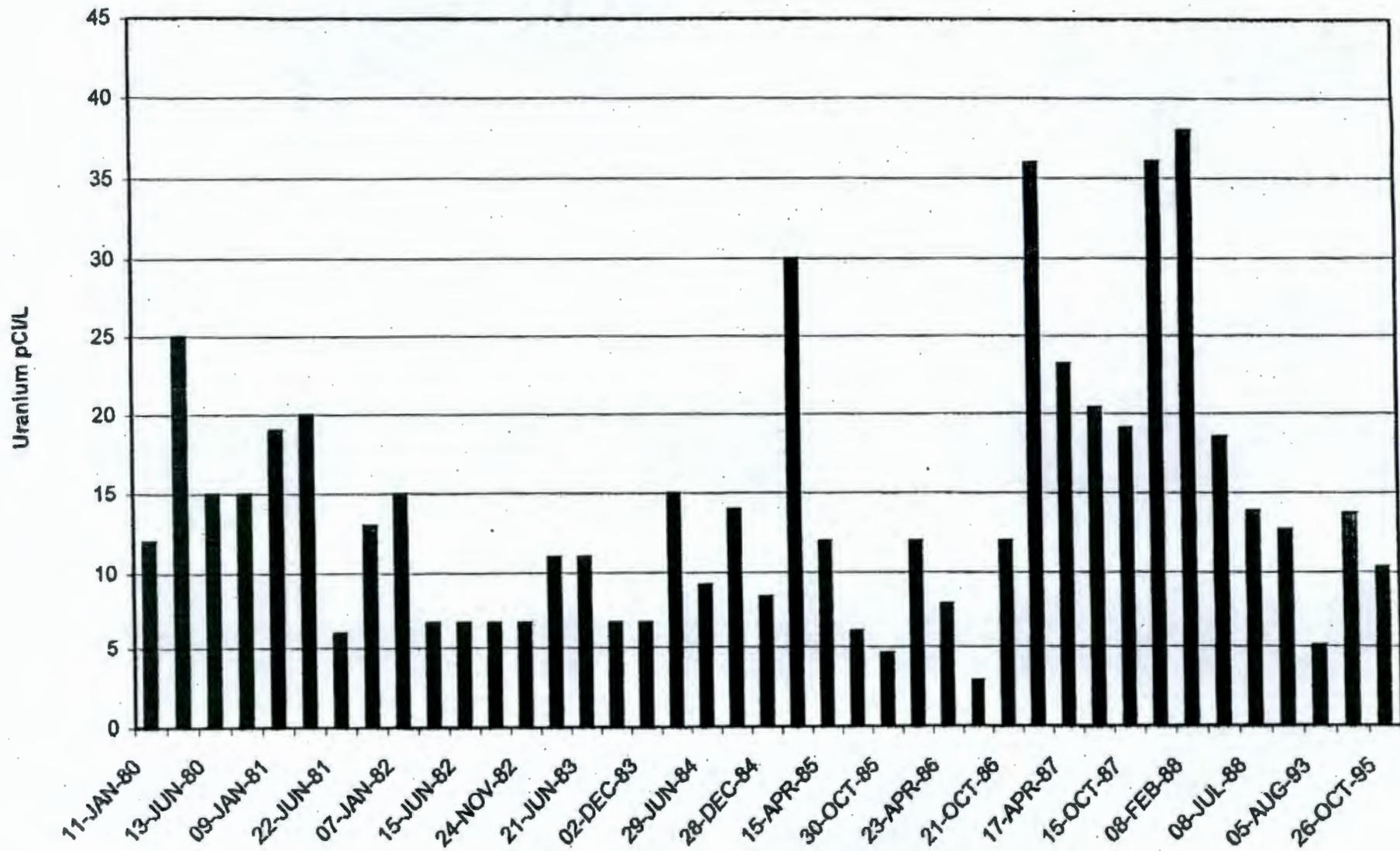
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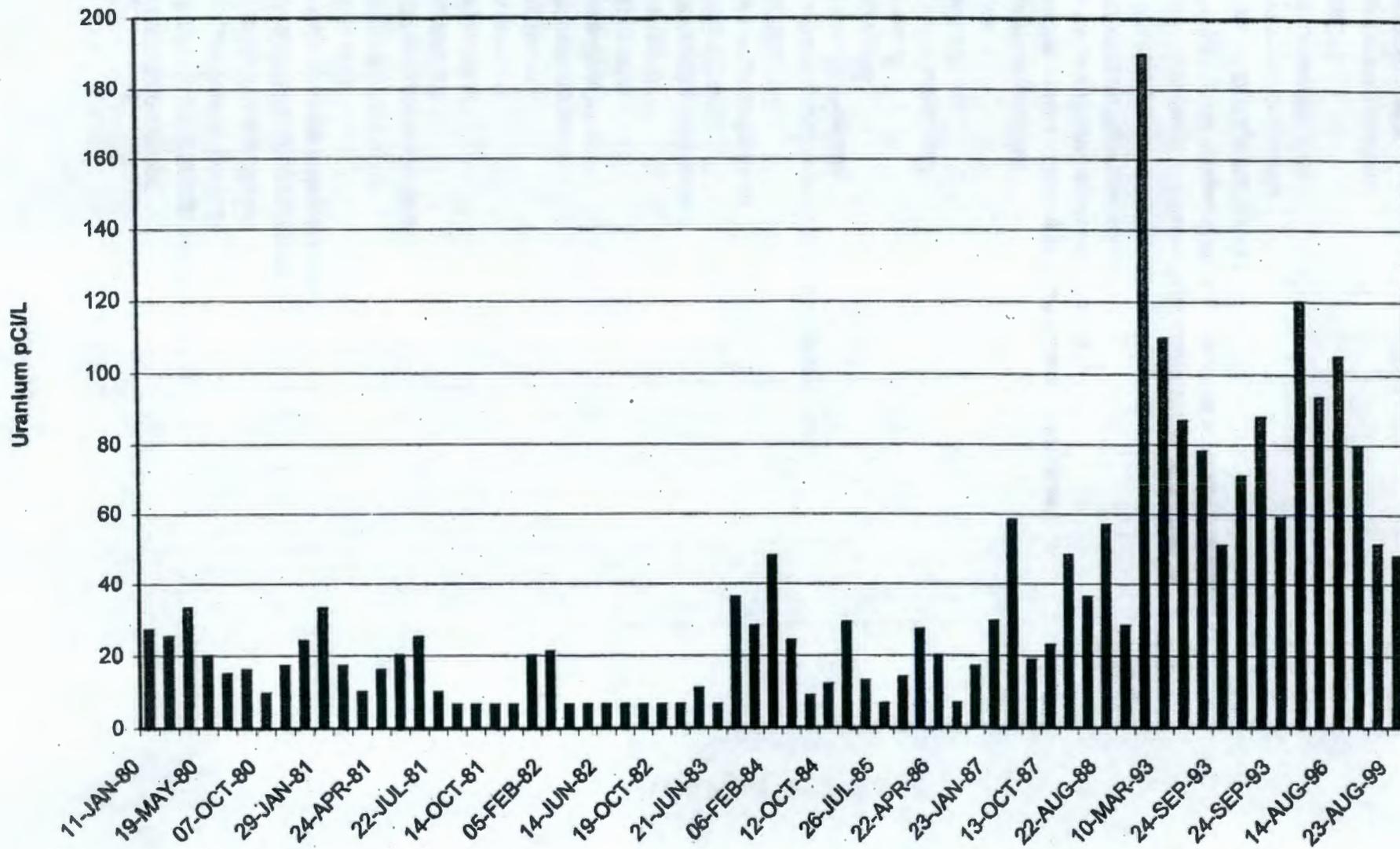
Well 399-1-2



Well 399-1-4



Well 399-1-5



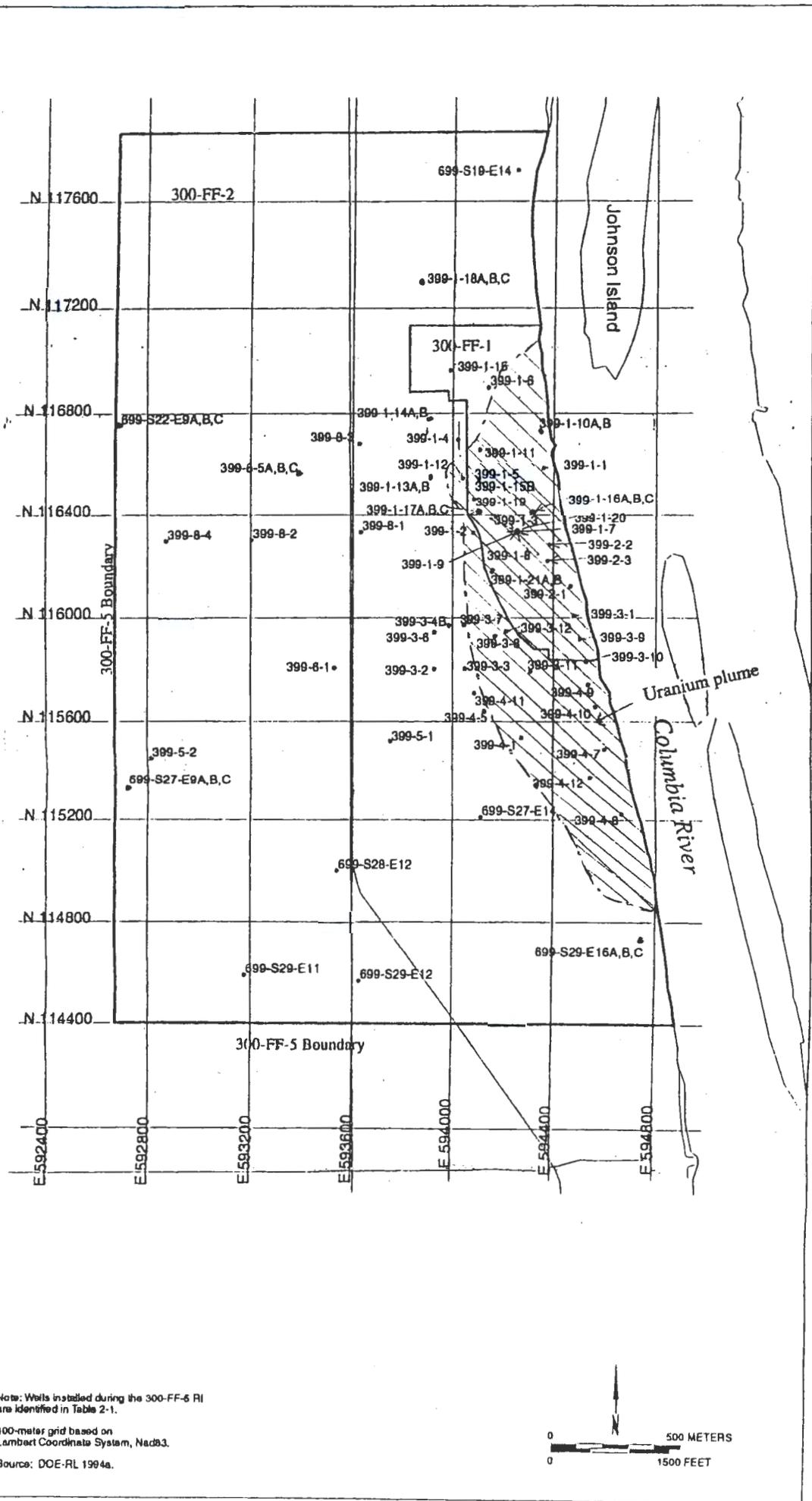
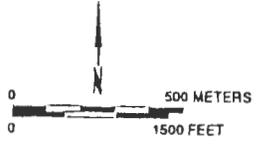


Figure 2.2. Location of Monitoring Wells in the 300-FF-5 Operable Unit.

Note: Wells installed during the 300-FF-5 RI are identified in Table 2-1.  
 400-meter grid based on Lambert Coordinate System, NAD83.  
 Source: DOE-RL 1994a.



DOE/RL-94-85  
 Rev. 0

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