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**HRS DOCUMENTATION RECORD**  
for  
**Harkey Road Site**

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Austin, Texas

**April 15, 2001**

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# **HAZARD RANKING SYSTEM DOCUMENTATION RECORD**

**for**

**Harkey Road Site  
Brazoria County, Texas**

**Prepared by:**

**Texas Natural Resource Conservation Commission  
Superfund Site Discovery and Assessment Program  
Austin, Texas**

**March 2001**

HRS  
Documentation Record

Harkey Road Site  
Brazoria County, Texas

Prepared by

Texas Natural Resource Conservation Commission  
Site Assessment and Management Section  
Superfund Site Discovery and Assessment Program  
Austin, Texas

March 2001

**HRS DOCUMENTATION RECORD**

**HARKEY ROAD SITE**

**BRAZORIA COUNTY, TEXAS**

**SIGNATURE PAGE**

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## CONTENTS

	Page
HRS Documentation Record Cover Sheet .....	1
Pathways, Components, or Threats Not Evaluated .....	1
Note to the Reader .....	2
HRS Documentation Record .....	3
Site Location .....	3
Site Scoring Summary .....	3
Site Summary .....	4
General Description of the Site .....	4
Site History .....	4
Worksheet for HRS Site Score .....	12
Ground Water Migration Pathway Scoresheet .....	13
Soil Exposure Pathway Scoresheet .....	15
Reference Listings .....	17

## FIGURES

Figure 1	Site Location Map .....	8
Figure 2	On-site Soil Sample Location Map .....	9
Figure 3	Public Water Supply Wells Within 4-Mile Radius .....	10
Figure 4	Area of Contamination .....	11

## ATTACHMENTS

Attachment A - Summary of Ground Water Potential Contamination Population

## HRS DOCUMENTATION RECORD - REVIEW COVER SHEET

**SITE NAME:** HARKEY ROAD SITE

**CONTACT PERSON:**

Documentation Record: Johnny Kennedy - TNRCC Project Manager 713/767-3552

**PATHWAYS OF CONCERN:**

### **Ground Water Pathway**

Releases of hazardous substances to the ground water pathway are a major concern for this site. Hazardous substances have been documented in the shallow ground water beneath the site. The Chicot/Evangeline aquifer is the aquifer of concern. The Ground Water Pathway is being scored based on the threat of potential contamination to area drinking water wells.

### **Soil Exposure Pathway**

Releases of hazardous substances to the surface soils are a major concern for this site. Hazardous substances have been documented in the surface soil at the site and in the surface soils of The adjacent occupied property to the north. The Soil Exposure Pathway is being evaluated based upon residential target populations and nearby residential target populations.

**PATHWAYS, COMPONENTS, OR THREATS NOT EVALUATED:**

### **Surface Water Pathway**

The Surface Water Overland/Flood Migration Pathway was not evaluated as no soil/sediment samples were collected along this pathway to document an observed release. The inclusion of this pathway would not significantly affect the site score.

### **Air Migration Pathway**

The Air Migration Pathway was not evaluated due to the lack of an observed release and because the inclusion of this pathway would not significantly affect the site score.

*(Although these pathways have not been evaluated, the TNRCC is concerned for all pathways surrounding the site. However, evaluation of these pathways would not have significantly increased the overall site score.)*

## NOTES TO THE READER

The following rules were used when citing references in the HRS Documentation Record:

1. All references attached to this report have been stamped with a designated page number (example: Ref. 1, p. 10 = 001 00010). However, if the reference being cited has an original page number, that page number was cited. If the reference being cited has no original page number or the pagination is not complete, then the designated page number is cited.
2. The State predecessor agencies: Texas Water Quality Board (TWQB), Texas Department of Water Resources (TDWR), Texas Water Commission (TWC), and Texas Air Control Board (TACB), referred to throughout this report are now known as the Texas Natural Resource Conservation Commission (TNRCC). The new agency, TNRCC, became effective September 1, 1993, as mandated under State Senate Bill 2 of the 73rd Regular Legislative Session.

## HRS DOCUMENTATION RECORD

**Name of Site:** Harkey Road Site

**Date Prepared:** 03/01

**Solid Waste Registration (SWR) Number:** None

**Site Owner:** George and Nora Hastings Estate  
Harold Hastings (son) - Estate Executor for George Hastings  
Cheryl Greiner (granddaughter) - Estate Executor for Nora Hastings

**Street Address of Site:** 17111 Harkey Road

**City, County, State:** Unincorporated Brazoria County, Texas

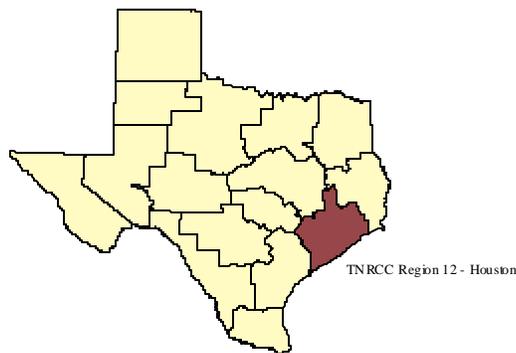
**General Location in the State:**  
(see Figure 1, Site Location Map and Figure 2, Soil Sample Location Map).

**Topographic Map(s):** US Geological Survey 7.5 Minute Topographic Map, Pearland Quadrangle, 1982.

**Latitude:** 29° 31' 20.45" North

**Longitude:** 95° 18' 48.74" West

**TNRCC Region: 12**



### Pathway Scores:

Groundwater Migration Pathway - 51.04

Surface Water Migration Pathway - NE

Soil Exposure Pathway - 5.76

Air Migration Pathway - NE

(NE - Not Evaluated)

**HRS SITE SCORE: 25.66**

## SITE SUMMARY

### **General Description of the Site:**

The Harkey Road Site is located on the northeast corner of Harkey Road (County Road 103) and Bryan (County Road 279A), in an unincorporated area of Brazoria County approximately 2 miles south of the City of Pearland (Figure 1). The actual site address is 17111 Harkey Road. The Harkey Road Site was originally purchased as part of a 10 acre tract by Mr. George V. Hastings in October 1962 (Ref.3, p. 5). The 10 acre tract was subdivided into individual lots in 1974, and most of the lots were subsequently sold. The Harkey Road Site refers to approximately lots 4, 5, and 6 (see Ref. 4, p. 2). The Harkey Road site is now part of the George and Nora Hastings Estate. Mr. Harold F. Hastings, son of George and Nora Hastings, is the estate executor of the George Hastings estate, and Ms. Sheryl Greiner, granddaughter of George and Nora Hastings, is the estate executor of the Nora Hastings estate (Ref. 3, pp. 7, 25).

The site was identified in 1997 by the Texas Department of Health (TDH) and the Brazoria County Health Department following an investigation into a lead poisoning case involving a 2 year old child. This child and her family had lived in a rented mobile home at the Harkey Road site. The TDH established the lead source as buried battery chips located on the property (Ref. 5). In September 1997, TNRCC Region 12 staff collected 7 surface soil samples from the site and analyzed these samples for total lead and TCLP lead. The laboratory sample results indicated levels of total lead ranging from 95.5 mg/kg to 27,100 mg/kg and levels of TCLP lead ranging from 0.47 mg/L to 115 mg/L (Ref. 3, pp. 5 and 6). The TNRCC subsequently installed a security fence around the site to prevent unauthorized access (Ref. 3, p. 27).

From August 2000 through January 2001, TNRCC representatives collected environmental samples as part of an investigation of the Harkey Road Site. Soil samples were collected at two depth intervals from locations on-site, from the adjacent public right-of-way, and from the lot directly north of the site (Figure 2). Background soil samples were collected from three off-site locations to determine the naturally occurring levels of contaminants in the area. Ground water samples were collected from three on-site, subsurface probe locations to evaluate the potential release(s) of contaminants to the shallow ground water beneath the site. Additional ground water samples were collected from one domestic drinking water well and three public water supply wells within a 1-mile radius of the site. One additional public water supply well located approximately 3 miles north of the site was also sampled. Laboratory analysis soil samples indicate an observed release to the surface soils at the Harkey Road site and to the surface soils of an occupied property to the north, and laboratory analysis of ground water samples indicate an observed release to the shallow ground water of the Chicot/Evangeline aquifer beneath the site (Refs. 6 - 10).

### **Site History:**

The Harkey Road Site was originally purchased as part of a 10 acre tract by Mr. George V. Hastings in October 1962 (Ref. 3, p. 5).

On December 22, 1970, George and Nola Hastings executed a deed for Restrictions of Hastings Acres in Brazoria County. Within this document, Mr. & Mrs. Hastings express their intent to sell and convey various lots and set forth restrictions for Hastings Acres, a Subdivision of Tracts 1 thru 26, of the HT&B

RR Co. Survey, Section 25, Abstract 245 (Ref. 3, pp. 51 - 53).

From March 1972 through June 1974, Mr. & Mrs. Hastings executed four (4) contracts for deeds with Mr. & Mrs. Ray O. Wilson for Tracts 4, 5, 9, and 26. In 1975, the Wilsons defaulted on these contracts. In 1976, Mr. Hasting's attorney had the Wilsons sign a pro forma Quitclaim Deed to clear the records (Ref. 3, pp. 47 - 50).

Tract 4 of the Hastings Acres Subdivision was apparently sold to Mrs. Doris Rollins in late 1976. Mrs. Rollins attempted to then sell the property in January 1978 to Henry and Margaret Sliva. However, Mr. George Hastings still held a lien on the property and therefore, Mr. & Mrs. Silva were to rent the property until the lien was eliminated (Ref. 3, pp. 45 and 46).

On May 1, 1978, Tract 4 of the Hastings Acres Subdivision was released by Mrs. Rollins to Mr George V. Hastings (Ref. 3, p. 44).

Nora Hastings passed away in 1992. Paragraph seven of her Last Will and Testament states that her half of the community property owned by here and her husband "shall pass to and vest in my daughter, Georganna Triplett, and my former son-in-law Theodore Triplett". Sheryl Greiner is named as Independent Executrix of Nola Hastings estate. George Hastings passed away in 1997. His Last Will and Testament states that the property "being disposed by the Will shall include only my one-half (1/2) of the community estate of my deceased wife...and any and all separate property that I may own at the time of my death". Harold Hastings is named as the primary bequest (Ref.3, pp. 26, and 55 - 64).

In August 1997, the TNRCC received two referrals from other agencies in regards to the Harkey Road site (Ref. 3, p. 5). On August 20, 1997, the Texas Department of Health forwarded an August 13, 1997 Interoffice Memorandum (IOM) to the TNRCC. This IOM describes lead poisoning case of a 2 year old child having a blood lead level of 34 ug/dl. The child's family lived in a rented mobile home at the Harkey Road site for a period of approximately 7 years (Ref. 5).

On September 12, 1997, TNRCC Region-12 and Brazoria County Health Department staff conducted an inspection at the site. Pieces of battery chips were observed by the investigators on the gravel driveway and in shallow excavations around the site. Seven soil samples were collected at the site and one background sample was collected from a neighbor's front yard 6 homes east of the site during the investigation. The samples were submitted to the TNRCC laboratory in Channelview, Texas and analyzed for total lead and TCLP lead. The analytical results indicated total lead concentrations ranging from 95.5 mg/kg to 27,100 mg/kg and TCLP concentrations ranging from 0.47 mg/L to 115 mg/L (Ref. 3, pp. 5 and 6).

In a November 7, 1997 Interoffice Memorandum, the TNRCC Region 12 Office referred the Harkey Road site concurrently to the TNRCC Clearinghouse Committee and the TNRCC Superfund Program (Ref. 3, pp. 10 - 16). During a subsequent December 18, 1997 TNRCC

Clearinghouse Committee meeting, the Pollution Cleanup Division accepted the case pending the exhaustion of enforcement (Ref. 3, p. 27).

On November 22, 1997, the TNRCC Emergency Response Section completed construction of a high-level security fence around the site to prevent unauthorized access (Ref. 3, p. 27).

On June 12, 1998, the TNRCC Executive Director filed a preliminary report and petition against all of the owners of the Harkey Road Site, the Estates of George and Nola Hastings. The property owners were the only respondents plead because the TNRCC staff was unable to conclusively determine who buried the old battery cases and chips (Ref. 3, pp. 70, and 73 - 78). Subsequently, the respondents proved to the TNRCC Financial Assurance Section that they were financially unable to pay for remediation of the Harkey Road Site or the recommended administrative penalty. Accordingly, all enforcement through the agency was exhausted and the site was formally referred to the State Superfund program in an April 26, 1999 TNRCC Interoffice Memorandum (Ref. 3, pp. 1 - 3).

In August 2000, a TNRCC Remediation Division contractor conducted a site investigation at the Harkey Road site utilizing a truck-mounted sampling probe. Sixty-three soil probe locations were evaluated within the fenced property of lots 4 and 5, and 24 soil probe locations were evaluated in the public right-of-way (Figure 2). Soil samples were collected from two depth intervals at each soil probe location; an upper soil sample collected approximately 6 inches below the base of the source material, and a lower soil collected approximately 2.5 feet below the upper sample (See Appendix A in Ref. 6). The laboratory sample analyses indicated 11 soil samples with concentrations of total lead greater than 500 mg/kg, with the highest concentration being 2,800 mg/kg. Three ground water samples were also collected from soil probe locations within the fenced property. Laboratory analysis of these ground water samples indicated an observed release to the shallow ground water, with concentrations of total lead ranging from 0.066 mg/L to 0.965 mg/L. Laboratory analyses background ground water samples collected from a domestic supply well located approximately 100 feet northwest of the site, and from a City of Pearland public water supply well located approximately 3 miles north of the site indicated no concentrations of lead above the analyzed detection limits. Based upon the TNRCC investigative results, it is estimated that a total of 800 cubic yards of source material underlies the Harkey Road site (Ref. 6, p. 11; Ref. 7).

On December 7 and 8, 2000, TNRCC representatives collected twenty-four (24) soil samples from Lot 6 of the Hastings Acres Subdivision to evaluate whether source material extends to the occupied residential property (Figure 2). These soil samples were collected from twelve sample locations at two depth intervals. Two of these samples from the upper sample depth exhibited levels of total lead greater than three times the highest background level, indicating an observed release. Three additional ground water samples were also collected from public water supply wells at the Flora #7 Subdivision (TNRCC I.D. #0200151), the Meadowlark Subdivision (TNRCC I.D. #02000271), and A Place to Grow Day Care (TNRCC I.D. #0200526). All these public water supply wells are located within a 1-mile distance from the site (Figure 3). Laboratory analysis of these ground water samples indicated elevated levels of lead in samples from the Meadowlark Subdivision well and from the A Place to Grow Day Care facility well (Ref. 8). TNRCC Remediation Division and Field Operations Division staff subsequently resampled these two public water supply wells and submitted duplicate samples to two different laboratories for verification analysis. The

verification sample results indicated no contaminants detected at levels above the MCLs (Ref. 9 and 10).

The Harkey Road Site is located in an unincorporated area of Brazoria County. The estimated residential population within 0.25 mile radius of the site is 137 people; the estimated residential population within 0.25 and 0.5 mile radius is 376 people; and the estimated residential population with the 0.5 and 1.0 mile radius is 909 people (Ref. 11).

The nearest drinking water well identified is domestic well located at 17102 Harkey Road, approximately 100 feet (0.019 mile) northwest of the site. This well is a 200+ foot well serving the Palmer residence (Ref. 6, pp. 5 and 9). The nearest public water supply well is owned by Frontier Water Company (TNRCC I.D. #0200144) at County Road 103 (Harkey Road and County Road 279 (McDonald Road) (Figure 3). This well has a depth of 578 feet and serves a residential population of 66 people (Ref. 12, pp. 2 - 4). There is one additional public water supply well located within 1/4 mile of the site and there are five public water supply wells (four public water supply systems) between 1/2 and 1 mile of the site (Figure 3). These wells range in depth from 300 feet to 461 feet (Ref. 12, pp. 8 - 55). The estimated potential target population within the target distance limit is shown in Appendix A.

Chemical analysis of soil samples indicate an observed release to the soils at the Harkey Road Site. Lot 6 of the site is an occupied residence where three people reside (Ref. 13, p. 1; Ref. 14). Chemical analysis of ground water samples collected at three, on-site probe locations indicate a release of lead to the shallow ground water beneath the site. Ground water samples collected from one domestic water well and from three public water supply wells within a 1-mile radius of the site did not reveal the presence of contaminants at concentrations which meet the criteria of an observed release or at concentrations above the MCLs for drinking water.

Releases of hazardous substances to the ground water pathway and the soil exposure pathway are the major concerns for this site. Buried hazardous substances have been documented on-site and a release of a hazardous substance has been documented by chemical analysis of the shallow ground water beneath the site. The Chicot aquifer includes all deposits from the land surface to the top of the underlying Evangeline aquifer (Ref. 15, p. 12). The Chicot aquifer and the Evangeline aquifer are geologically similar and hydrologically inter-connected; therefore, the aquifers are considered a single aquifer. The Chicot/Evangeline aquifer is the major aquifer in the area (Ref. 15 & 16). The Ground Water Pathway is being scored based on the threat of potential contamination to area drinking water wells completed in this aquifer. The soil exposure pathway is being evaluated based upon residential target population and nearby residential target populations.

## WORKSHEET FOR COMPUTING HRS SITE SCORE

S S<sup>2</sup>

1.	Ground Water Migration Pathway Score ( $S_{gw}$ ) (from Table 3-1, line 13)	<u>51</u>	<u>2601</u>
2a.	Surface Water Overland/Flood Migration Component (from Table 4-1, line 30)	<u>NE</u>	
2b.	Ground Water to Surface Water Migration Component (from Table 4-25, line 28)	<u>NE</u>	
2c.	Surface Water Migration Pathway Score ( $S_{sw}$ ) Enter the larger of lines 2a and 2b as the pathway score.	<u>NE</u>	
3.	Soil Exposure Pathway Score ( $S_s$ ) (from Table 5-1, line 22)	<u>5.76</u>	<u>33.18</u>
4.	Air Migration Pathway Score ( $S_a$ ) (from Table 6-1, line 12)	<u>NE</u>	
5.	Total of $S_{gw}^2 + S_{sw}^2 + S_s^2 + S_a^2$	<u>2634.18</u>	
6.	<b>HRS Site Score</b> Divide the value on line 5 by 4 and take the square root.	<u><b>25.66</b></u>	

**GROUND WATER MIGRATION PATHWAY SCORESHEET**  
**Chicot/Evangeline Aquifer**

<u>Factor Categories and Factors</u>		<u>Maximum Value</u>	<u>Value Assigned</u>
<b><u>Likelihood of Release to an Aquifer</u></b>			
1.	Observed Release (Ref. 6)	550	<u>550</u>
2.	Potential to Release (Not Evaluated)		
2a.	Containment	10	—
2b.	Net Precipitation	10	—
2c.	Depth to Aquifer	5	—
2d.	Travel Time	35	—
2e.	Potential to Release (Lines 2a(2b + 2c + 2d))	500	—
3.	Likelihood of Release (Higher of Line 1 and 2e)	550	<b><u>550</u></b>
<b><u>Waste Characteristics</u></b>			
4.	Toxicity/Mobility (Ref. 1, Sect. 3.2.1.2; Ref. 2, Lead; Ref. 6 )	*	<u>10,000</u>
5.	Hazardous Waste Quantity (Ref. 6; Ref. 8; Figure 4; Ref. 1, Sect. 2.4.2.2)	*	<u>10</u>
6.	Waste Characteristics (Ref. 1, Sect. 2.4.2.2, Table 2-7)	100	<b><u>18</u></b>
<b><u>Targets</u></b>			
7.	Nearest Well (Ref. 6, page 5; Ref. 1, Sect. 3.3.1)	50	<u>20</u>
8.	Population:		
8a.	Level I Concentrations	**	<u>0</u>
8b.	Level II Concentrations	**	<u>0</u>
8c.	Potential Contamination (Ref. 1, Sect.3.3.2.4; Ref. 12; Appendix A)	**	<u>405.3</u>
8d.	Population (Lines 8a + 8b + 8c)	**	<u>405.3</u>
9.	Resources	5	<u>0</u>
10.	Wellhead Protection Area	20	<u>0</u>
11.	Targets (Lines 7 + 8d + 9 + 10)	**	<b><u>425.3</u></b>

\* Maximum value applies to waste characteristics category.

\*\* Maximum value not applicable.

**GROUND WATER MIGRATION PATHWAY SCORESHEET - (Continued)**  
**Chicot/Evangeline Aquifer**

<u>Ground Water Migration Score for an Aquifer</u>	<u>Maximum Value</u>	<u>Value Assigned</u>
12. Aquifer Score ((Lines 3 x 6 x 11)/82,500)***	100	<u>51.04</u>
<b><u>Ground Water Migration Pathway Score</u></b>		
13. Pathway Score ( $S_{gw}$ ), (Highest value from Line 12 for all aquifers evaluated)***	100	<u>51.04</u>

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\*\*\* Do not round to nearest integer.

**SOIL EXPOSURE PATHWAY SCORESHEET**

<u>Factor Categories and Factors</u>	<u>Maximum Value</u>	<u>Value Assigned</u>
<b>RESIDENT POPULATION THREAT</b>		
<b><u>Likelihood of Release</u></b>		
1. Likelihood of Exposure ( <i>Ref. 8; Ref. 13; Ref. 14</i> )	550	<u>550</u>
<b><u>Waste Characteristics</u></b>		
2. Toxicity ( <i>Ref. 6; Ref. 8; Ref. 2, Lead; Ref. 1, Sect. 5.1.2.1</i> )	*	<u>10,000</u>
3. Hazardous Waste Quantity ( <i>Ref. 6; Ref. 8; Figure 4; Ref. 1, Sect. 2.4.2.2</i> )	*	<u>10</u>
4. Waste Characteristics ( <i>Ref. 1, Table 2-7</i> )	100	<u>18</u>
<b><u>Targets</u></b>		
5. Resident Individual ( <i>Ref. 8; Ref. 13; Ref. 14; Ref. 1, Sect. 5.1.3.1</i> )	50	<u>45</u>
6. Resident Population:		
6a. Level I Concentrations	**	—
6b. Level II Concentrations ( <i>Ref. 8; Ref. 13; Ref. 14; Ref. 1, Sect. 5.1.3.2.2</i> )	**	<u>3</u>
6c. Resident Population (Lines 6a + 6b)	**	<u>3</u>
7. Workers	15	—
8. Resources	5	—
9. Terrestrial Sensitive Environments	***	—
10. Targets (Lines 5 + 6c + 7 + 8 + 9)	**	<u>48</u>
<b><u>Resident Population Threat Score</u></b>		
11. Resident Population Threat (Lines 1 x 4 x 10)	**	<u>475,200</u>
<b><u>NEARBY POPULATION THREAT</u></b>		NOT SCORED
<b><u>Likelihood of Exposure</u></b>		
12. Attractiveness/Accessibility	100	—
13. Area of Contamination (	100	—
14. Likelihood of Exposure	500	—

\* Maximum value applies to waste characteristics category

\*\* Maximum value not applicable

\*\*\* No specific maximum value applies to factor. However, pathway score based solely on sensitive environments is limited to maximum of 60.

\*\*\*\* Do not round to the nearest integer

**SOIL EXPOSURE PATHWAY SCORESHEET**

**NEARBY POPULATION THREAT (Concluded)**

<u>Waste Characteristics</u>	<u>Maximum Value</u>	<u>Value Assigned</u>
15. Toxicity	*	—
16. Hazardous Waste Quantity	*	—
17. Waste Characteristics (	100	—
<b><u>Targets</u></b>		
18. Nearby Individual	1	—
19. Population Within 1-Mile	**	—
20. Targets (Lines 18 + 19)	**	—
<b><u>Nearby Population Threat Score</u></b>		
21. Nearby Population Threat (Lines 14 x 17 x 20)	**	—
<b>SOIL EXPOSURE PATHWAY SCORE</b>		
22. Soil Exposure Pathway Score *** (S <sub>3</sub> )(Lines 11 + 21)/82,500, subject to a maximum of 100)	100	<u>5.76</u>

\* Maximum value applies to waste characteristics category

\*\* Maximum value not applicable

\*\*\* Do not round to the nearest integer

## REFERENCES

- | <u>Reference Number</u> | <u>Description of the Reference</u>  |
|-------------------------|--|
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