



1  
00:00:13,070 --> 00:00:10,850  
in April 2007 two NASA Kennedy Space

2  
00:00:15,560 --> 00:00:13,080  
Center employees were inducted into the

3  
00:00:17,750 --> 00:00:15,570  
space technology Hall of Fame for their

4  
00:00:19,880 --> 00:00:17,760  
award-winning work in developing a

5  
00:00:22,310 --> 00:00:19,890  
substance for cleaning up water and

6  
00:00:25,820 --> 00:00:22,320  
soils contaminated by chlorinated

7  
00:00:28,400 --> 00:00:25,830  
solvents the inductees dr. Jacqueline

8  
00:00:30,919 --> 00:00:28,410  
Quinn a NASA environmental engineer and

9  
00:00:33,680 --> 00:00:30,929  
Kathleen Brooks a NASA analytical

10  
00:00:38,630 --> 00:00:33,690  
chemist invented an emulsion called

11  
00:00:42,170 --> 00:00:38,640  
emulsified zero valent iron ore ezvi to

12  
00:00:44,150 --> 00:00:42,180  
eliminate ground pollutants for many

13  
00:00:46,279 --> 00:00:44,160

years chlorinated solvents have been

14

00:00:48,410 --> 00:00:46,289

used to clean rocket engine parts and

15

00:00:51,470 --> 00:00:48,420

other equipment by the Department of

16

00:00:53,900 --> 00:00:51,480

Energy Department of Defense NASA and

17

00:00:57,860 --> 00:00:53,910

private industry facilities around the

18

00:01:01,340 --> 00:00:57,870

country at the time the solvents called

19

00:01:03,880 --> 00:01:01,350

dense non-aqueous phase liquids or diene

20

00:01:06,350 --> 00:01:03,890

apples for short were considered safe

21

00:01:08,840 --> 00:01:06,360

when the solvents were disposed of

22

00:01:11,990 --> 00:01:08,850

because they are heavier than water they

23

00:01:13,850 --> 00:01:12,000

sank into the ground later it was

24

00:01:16,640 --> 00:01:13,860

discovered the solvents could become

25

00:01:19,820 --> 00:01:16,650

harmful especially to the aquifer which

26

00:01:22,070 --> 00:01:19,830

is often a source of drinking water dea

27

00:01:24,170 --> 00:01:22,080

apples and groundwater were difficult to

28

00:01:27,980 --> 00:01:24,180

remove and the process was cumbersome

29

00:01:30,469 --> 00:01:27,990

and costly turning to nanotechnology for

30

00:01:32,749 --> 00:01:30,479

an answer Quinn and Brooks teamed with

31

00:01:35,450 --> 00:01:32,759

researchers at the University of Central

32

00:01:39,469 --> 00:01:35,460

Florida to conduct the first phase of

33

00:01:40,999 --> 00:01:39,479

research and development of ezvi the

34

00:01:43,399 --> 00:01:41,009

team developed a thick substance

35

00:01:46,819 --> 00:01:43,409

containing a mixture of iron particles

36

00:01:48,710 --> 00:01:46,829

water and vegetable oil the oil worked

37

00:01:51,230 --> 00:01:48,720

like a magnet helping to attract

38

00:01:53,660 --> 00:01:51,240

contaminants while the nanoparticles

39

00:01:55,789 --> 00:01:53,670

broke down the din apple into harmless

40

00:01:59,480 --> 00:01:55,799

components that could be consumed by

41

00:02:01,190 --> 00:01:59,490

microbes in the soil any vegetable oil

42

00:02:03,080 --> 00:02:01,200

left in the groundwater would be

43

00:02:06,980 --> 00:02:03,090

absorbed by naturally occurring bacteria

44

00:02:09,499 --> 00:02:06,990

in the surrounding soil depending on the

45

00:02:11,330 --> 00:02:09,509

size of the contaminated site it might

46

00:02:13,869 --> 00:02:11,340

take just a few weeks before the

47

00:02:17,570 --> 00:02:13,879

groundwater is completely clean

48

00:02:20,059 --> 00:02:17,580

but ezvi is one of only a few methods

49

00:02:22,820 --> 00:02:20,069

available to treat the DiNapoli their

50

00:02:27,530 --> 00:02:22,830

source and the product is safe for the

51  
00:02:29,990 --> 00:02:27,540  
environment the ezvi team was granted

52  
00:02:32,539 --> 00:02:30,000  
yet another patent for use on metal

53  
00:02:35,350 --> 00:02:32,549  
contamination making their innovative

54  
00:02:37,789 --> 00:02:35,360  
technology even more globally applicable

55  
00:02:39,920 --> 00:02:37,799  
the Hall of Fame honors those who

56  
00:02:42,710 --> 00:02:39,930  
transform technology originally

57  
00:02:45,229 --> 00:02:42,720  
developed to support space exploration

58  
00:02:48,339 --> 00:02:45,239  
initiatives into products that help

59  
00:02:50,599 --> 00:02:48,349  
improve the quality of life on earth

60  
00:02:53,030 --> 00:02:50,609  
anyone interested in more information

61  
00:02:55,640 --> 00:02:53,040  
should contact NASA Kennedy Space

62  
00:02:59,149 --> 00:02:55,650  
Center's innovative partnerships program